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UNITED STATES DEPARTMENT OF AGRICULTURE  
U.S. CONSUMER AND MARKETING SERVICE  
DAIRY DIVISION  
WASHINGTON, D.C. 20250

GENERAL SPECIFICATIONS FOR DAIRY PLANTS APPROVED  
FOR USDA INSPECTION AND GRADING SERVICE

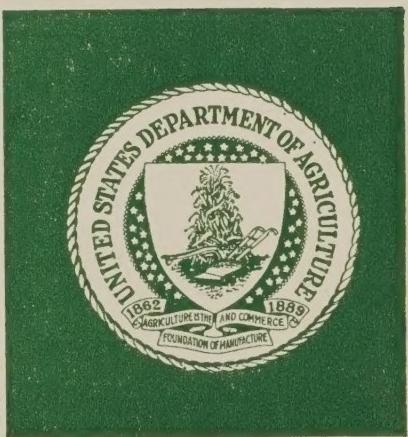


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U. S. DEPT. OF AGRICULTURE

TITLE 7 - AGRICULTURE  
CHAPTER 1 - CONSUMER AND MARKETING SERVICE (STANDARDS,  
INSPECTIONS, MARKETING PRACTICES), DEPARTMENT OF AGRICULTURE

PART 58 - GRADING AND INSPECTION, GENERAL  
SPECIFICATIONS FOR APPROVED DAIRY PLANTS AND  
STANDARDS FOR GRADES OF DAIRY PRODUCTS

SUBPART B - GENERAL SPECIFICATIONS FOR DAIRY PLANTS  
APPROVED FOR USDA INSPECTION AND GRADING SERVICE 1/

A proposed revision of the Minimum Specifications for Approved Plants Manufacturing, Processing and Packaging Dairy Products Under USDA Inspection titled General Specifications for Dairy Plants Approved for USDA Inspection and Grading Service, hereinafter referred to as General Specifications, was published in the Federal Register of September 16, 1966 under Proposed Rule Making. It afforded interested parties 90 days to submit written data, views or arguments for consideration therewith.

Statement of Considerations.

Some of the comments that were received did indicate that certain sections of the proposal were subject to misinterpretation. Therefore, minor changes have been made in line with those comments to more clearly state but not change the true intent of those sections. Certain other comments proposing complete changes or deletions of certain requirements were given careful consideration but their adoption was determined to be not in the best interest of a satisfactory and comprehensive plant approval program.

1/ Compliance with these standards does not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or applicable laws and regulations of States or Municipalities.

Therefore, the General Specifications are hereby promulgated under the authority contained in the Agricultural Marketing Act of 1946, as amended (60 Stat. 1087 as amended, 7 U. S. C. 1621 - 1627). It has been determined that it would be in the best interest of those concerned that the General Specifications become effective 60 days after publication in the Federal Register. The General Specifications shall supersede the Minimum Specifications for Approved Plants Manufacturing, Processing and Packaging Dairy Products Under United States Department of Agriculture Inspection effective November 1955.

The revision is as follows:

Subpart B - GENERAL SPECIFICATIONS FOR DAIRY PLANTS

FOR USDA INSPECTION AND GRADING SERVICE 1/

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sec.

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AUTHORITY: The provisions of this Subpart B issued under Agricultural Marketing Act of 1946 (60 Stat. 1087, as amended; 7 U.S.C. 1621-1627).

DEFINITIONS

58.101 Meaning of words--For the purpose of the regulations of this subpart, words in the singular form shall be deemed to impart the plural and vice versa, as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning:

(a) Act.--The applicable provisions of the Agricultural Marketing Act of 1946 (60. Stat. 1087, as amended; 7 U.S.C. 1621-1627), or any other Act of Congress conferring like authority.

(b) Administrator.--The Administrator of the Consumer and Marketing Service or any other officer or employee of the Consumer and Marketing Service of the Department to whom there has heretofore been delegated, or to whom there may hereafter be delegated the authority to act in his stead.

(c) Approved laboratory.-- A laboratory in which the facilities and equipment used for official testing have been approved by the Administrator as being adequate to perform the necessary official tests in accordance with this part.

(d) Approved plant.--One or more adjacent buildings, or parts thereof, comprising a single plant at one location in which the facilities and methods of operation therein have been surveyed and approved by the Administrator as suitable and adequate for inspection or grading service, in accordance with this part.

(e) Sanitizing treatment.--Subjecting of a clean product contact surface to an acceptable sanitizing agent of sufficient strength, and for a duration of time, as to effectively destroy microorganisms.

(f) Continuous resident service or resident service.--Inspection or grading service performed at a dairy manufacturing plant or grading station by an inspector or grader assigned to the plant or station on a continuous year-around resident basis.

(g) Dairy products.--Butter, cheese (whether natural or processed), skim milk, cream, milk products (whether dry, evaporated, stabilized or condensed), ice cream, dry whey, dry buttermilk, and any other food product which is prepared or manufactured in whole or in part from any of the aforesaid products, as the Administrator may hereafter designate.

(h) Grader.--Any employee of the Department authorized by the Secretary or any other person to whom a license has been issued by the Secretary, to investigate and certify, in accordance with the Act and this part, to shippers of products and other interested parties, the class, quality, quantity, and condition of such products.

(1) Inspector.--Any employee of the Department authorized by the Secretary, or any other person to whom a license has been issued by the Secretary, to inspect and certify quality, quantity and condition of products, observe the manufacturing, processing, packaging and handling of dairy products, and to perform dairy plant surveys in accordance with the regulations of this part.

(2) Inspection or grading service. Means in accordance with this part, the act of (1) drawing samples of any product; (2) determining the class, grade, quality, composition, size, quantity, or condition of any product by examining each unit or representative samples; (3) determining condition of product containers; (4) identifying any product or packaging material by means of official identification; (5) regrading or appeal grading of a previously graded product; (6) inspecting dairy plant facilities, equipment, and operations; such as, processing, manufacturing, packaging, repackaging, and quality control; (7) supervision of packaging inspected or graded product; (8) reinspection or appeal inspection; and (9) issuing an inspection or grading certificate or sampling, inspection, or other report related to any of the foregoing.

(3) Milk.--The whole lacteal secretion, practically free from colostrum, obtained by the complete milking of one or more healthy cows located in modified accredited areas and modified certified areas or from cows in herds fully accredited as tuberculosis-free and certified brucellosis-free by the United States Department of Agriculture or in the process of being accredited.

(l) Official methods.--Official Methods of Analysis of the Association of Official Agricultural Chemists, a publication of the Association of Official Analytical Chemists, Box 540, Benjamin Franklin Station, Washington, D. C. 20044.

(m) Plant survey.--An appraisal of a plant to determine the extent to which facilities, equipment, method of operation, and raw material being received are in accordance with the provisions of this part. The survey shall be used to determine suitability of the plant for USDA inspection or grading service.

(n) Producer.--The person or persons who exercise control over the production of the milk delivered to a processing plant or receiving station and who receive payment for this product.

(o) Quality control.--The inspection of the quality of the raw material and the conditions relative to the preparation of the product from its raw state through each step in the entire process. It includes the inspection of conditions under which the product is prepared, processed, manufactured, packed and stored. In addition, assistance and guidance is offered to improve the raw milk quality, processing methods, quality, stability, and packaging and handling of the finished product.

(p) Regulations.--The term "regulations" means the provisions contained in this part.

(q) Secretary.-- The Secretary of Agriculture or any other officer or employee of the Department to whom there has heretofore been delegated, or to whom there may hereafter be delegated, the authority to act in his stead.

(r) Shall.--Expresses a provision that is mandatory.

(4) Should.--Expresses recommended nonmandatory provisions which when followed would significantly aid in a quality improvement program.

(5) Standard methods.--Standard Methods for the Examination of Dairy Products, a publication of the American Public Health Association, 1790 Broadway, New York, New York.

(6) 3-A Sanitary Standards and Accepted Practices.--The latest standards for dairy equipment and accepted practices formulated by the 3-A Sanitary Standards Committees representing the International Association of Milk, Food and Environmental Sanitarians, the United States Public Health Service and the Dairy Industry Committee. Published by the International Association of Milk and Food Sanitarians, Box 437, Shelbyville, Indiana.

(V) "USDA" or "Department".--Means the United States Department of Agriculture

#### PURPOSE

##### 58.122 Approved Plants under USDA inspection and grading service.

(a) Adoption of certain sound practices at dairy plants will significantly aid the operators to manufacture more consistently, uniform high-quality stable dairy products. Only dairy products manufactured, processed and packaged in an approved plant may be graded or inspected and identified with official identification. The specifications established herein provide the basis for a quality maintenance program which may be effectively carried forward through official inspection, grading, and quality control service.

(b) USDA inspection and grading service is provided to dairy product manufacturing plants on a voluntary basis. The operator of any dairy

plant desiring to have such a plant qualified as an approved plant under USDA inspection and grading service may request surveys of such plant, premises, equipment, facilities, methods of operation, and raw material to determine whether they are adequate to permit inspection and grading service. The cost of this survey shall be borne by the applicant.

#### APPROVED PLANTS

58.123 Survey and approval.--Prior to the approval of a plant, a designated representative of the Administrator shall make a survey of the plant, premises, storage facilities, equipment and raw material, volume of raw material processed daily and facilities for handling the products at the plant. The survey shall be made at least twice a year to determine whether the facilities, equipment, method of operation, and raw material being received are adequate and suitable for USDA inspection and grading service in accordance with the provisions of this part. To be eligible for approval a plant shall satisfactorily meet the specifications of this subpart.

58.124 Denial or suspension of plant approval.-- Plant approval may be denied or suspended if a determination is made by a designated representative of the Administrator that the plant is not performing satisfactorily in regard to (a) the classification of milk, (b) proper segregation and disposal of unwholesome raw materials (c) adequate facilities and condition of processing equipment, (d) sanitary conditions of plant and equipment, (e) control of insects, rodents and other vermin, (f) use of non-toxic product contact surfaces and prevention of adulteration of raw materials and products with chemicals or other foreign material, (g) proper operating procedures, (h) the maintenance of legal composition of finished products, (i) the manufacture of stable dairy products, of

desirable keeping quality characteristics, (j) proper storage conditions for ingredients and dairy products, or (k) suitable and effective packaging methods and material.

#### PREMISES, BUILDINGS, FACILITIES, EQUIPMENT AND UTENSILS

58.125 Premises.--(a) The premises shall be kept in a clean and orderly condition, and shall be free from strong or foul odors, smoke, or excessive air pollution. Construction and maintenance of drive-ways and adjacent plant traffic areas should be of cement, asphalt, or similar material to keep dust and mud to a minimum.

(b) Surroundings.--The adjacent surroundings shall be free from refuse, rubbish, and waste materials to prevent harborage of rodents, insects and other vermin.

(c) Drainage.--A suitable drainage system shall be provided which will allow rapid drainage of all water from plant buildings and drive ways, including surface water around the plant and on the premises, and all such water shall be disposed of in such a manner as to prevent a nuisance or health hazard.

58.126 Buildings.--The building or buildings shall be of sound construction and shall be kept in good repair to prevent the entrance or harboring of rodents, birds, insects, vermin, dogs, and cats. All service pipe openings through outside walls shall be effectively sealed around the opening or provided with tight metal collars.

(a) Outside doors, windows, openings, etc. --All openings to the outer air including doors, windows, skylights and transoms shall be effectively protected or screened against the entrance of flies and other insects, rodents, birds, dust and dirt. All outside doors opening into processing rooms shall be in good condition and fit properly. All hinged, outside screen doors shall open outward. All doors and windows shall be kept clean

and in good repair. Outside conveyor openings and other special-type outside openings shall be effectively protected to prevent the entrance of flies and rodents, by the use of doors, screens, flaps, fans or tunnels. Outside openings for sanitary pipelines shall be covered when not in use. On new construction window sills should be slanted downward at a 45° angle.

(b) Walls, ceilings, partitions and posts.--The walls, ceilings, partitions, and posts of rooms in which milk, or dairy products are processed, manufactured, handled, packaged or stored (except dry storage of packaged finished products and supplies) or in which utensils are washed and stored, shall be smoothly finished with a suitable material of light color, which is substantially impervious to moisture and kept clean. They shall be refinished as often as necessary to maintain a neat, clean surface. A wainscoting of a suitable material of a darker color may be used to a height not exceeding 60 inches. For easier cleaning new construction should have rounded cove at the juncture of the wall and floor in all receiving, pasteurizing, manufacturing, packaging and storage rooms.

(c) Floors.--The floors of all rooms in which milk, or dairy products are processed, manufactured, packaged or stored or in which utensils are washed shall be constructed of; tile properly laid with impervious joint material, concrete, or other equally impervious material. The floors shall be smooth, kept in good repair, graded so that there will be no pools of standing water or milk products after flushing, and all openings to the drains shall be equipped with traps properly constructed and kept in good repair. On new construction bell type traps shall not be used. The plumbing shall be so installed as to prevent the back-up of sewage into the drain lines and to the floor of the plant.

Sound, smooth wood floors which can be kept clean, may be used in rooms where new containers and supplies and certain packaged finished products are stored.

(d) Lighting and ventilation.--Light shall be ample, natural or artificial, or both, of good quality and well distributed. All rooms in which dairy products are manufactured or packaged or where utensils are washed shall have at least 30 foot-candles of light intensity on all working surfaces and at least 50 foot-candles of light intensity in areas where dairy products are graded or examined for condition and quality. In all other rooms there shall be provided at least 5 foot-candles of light intensity when measured at a distance of 30 inches from the floor. Where contamination of product by broken glass is possible, light bulbs and fluorescent tubes shall be protected against breakage.

(2) There shall be adequate heating, ventilation or air conditioning for all rooms and compartments to permit maintenance of sanitary conditions. Exhaust or inlet fans, vents, hoods or temperature and humidity control facilities shall be provided where and when needed, to minimize or eliminate undesirable room temperatures, objectionable odors, moisture condensation or mold. Inlet fans should be provided with an adequate air filtering device to eliminate dirt and dust from the incoming air. Ventilation systems shall be cleaned periodically as needed and maintained in good repair. Exhaust outlets shall be screened or provided with self closing louvers to prevent the entrance of insects when not in use.

(e) Rooms and compartments.--Rooms and compartments in which any raw material, packaging, ingredient supplies or dairy products are handled, manufactured, packaged or stored shall be so designed, constructed and maintained as to assure desirable room temperatures and clean and orderly operating conditions free from objectionable odors and vapors. Enclosed bulk milk receiving rooms when present shall be separated from the processing rooms by a partition. Rooms for receiving can milk shall be separated from the processing rooms by a partition (partial or complete), by suitable arrangement of equipment or by allowing enough distance between receiving and processing operations to avoid possible contamination of milk or dairy products during manufacturing and handling. Processing rooms shall be kept free from equipment and materials not regularly used.

(1) Coolers and freezers.--Coolers and freezers where dairy products are stored shall be clean, reasonably dry and maintained at the proper uniform temperature and humidity to adequately protect the product, and minimize the growth of mold. Adequate circulation of air shall be maintained at all times. They shall be free from rodents, insects, and pests. Shelves shall be kept clean and dry. Refrigeration units shall have provisions for collecting and disposing of condensate.

(2) Supply room.--The supply rooms used for the storing of packaging materials, containers, and miscellaneous ingredients shall be kept clean dry, orderly, free from insects, rodents, and mold and maintained in good repair. Such items stored therein shall be adequately protected from dust, dirt, or other extraneous matter and so arranged on racks, shelves or pallets to permit access to the supplies and cleaning and inspection of the room.

Insecticides, rodenticides, cleaning compounds and other nonfood products shall be properly labeled and segregated, and stored in a separate room or cabinet away from milk, dairy products, ingredients or packaging supplies.

(3) Boiler, and Tool rooms.--The boiler, and tool rooms shall be separated from other rooms where milk, and dairy products are processed, manufactured, packaged, handled or stored. Such rooms shall be kept orderly and reasonably free from dust and dirt.

(4) Toilet and dressing rooms.--Adequate toilet and dressing room facilities shall be conveniently located. --(a) Toilet rooms shall not open directly into any room in which milk or dairy products are processed, manufactured, packaged or stored; doors shall be self closing; ventilation shall be provided by mechanical means or screened openings to the outer air; fixtures shall be kept clean and in good repair. (b) All employees shall be furnished with a locker or other suitable facility and the lockers and dressing rooms shall be kept clean and orderly. Adequate hand-washing facilities shall be provided and durable, legible signs shall be posted conspicuously in each toilet or dressing room directing employees to wash their hands before returning to work.

(5) Laboratory.--(i) Consistent with the size and type of plant and the volume of dairy products manufactured, an adequately equipped laboratory shall be maintained and properly staffed with qualified and trained personnel for quality control and analytical testing. The laboratory shall be located reasonably close to the processing activity. It shall be of sufficient size to perform tests necessary in evaluating the quality of raw and finished products.

(ii) Approved laboratories shall be supervised by the USDA resident inspector in all aspects of official testing and reporting results. Plant laboratory personnel in such plants may be licensed by the USDA to perform official duties. An approved central control laboratory serving more than one plant may be acceptable, if conveniently located to the dairy plants, and if samples and results can be transmitted without undue delay.

(6) Starter facilities.--Adequate facilities shall be provided for the handling of starter cultures. The facilities shall be sufficiently isolated, (preferably a separate room) and shall not be located near cheese vats, whey separators or tanks where contamination is most likely to occur.

(7) Resident grading and inspection room.--Resident plants shall furnish a room or designated area for the grading and inspection of products. The room or area shall be suitably located, sufficient in size, well lighted, ventilated and the temperature shall be not less than 60° F. It shall be kept clean and dry, free from foreign odors and reasonably free from disturbing elements which would interfere with proper concentration by the grader or inspector. The grading or inspection room or area shall be equipped with a table or desk and convenient facilities for washing hands.

(8) Resident inspector's facilities.--In resident plants, an office or space shall be provided for official purposes. The room or space shall be conveniently located, preferably in or near the approved laboratory, adequate in size, and equipped with desk and a lockable storage supply cabinet, and clothes locker. It shall be well lighted, ventilated or air conditioned, heated, and custodial service furnished on a regular basis.

58.127 Facilities.--(a) Water supply.--There shall be an ample supply of both hot and cold water of safe and sanitary quality, with adequate facilities for its proper distribution throughout the plant, and protection against contamination and pollution. Water from other facilities, when officially approved, may be used for boiler feed water and condenser water provided that such water lines are completely separated from the water lines carrying the sanitary water supply, and the equipment is so constructed and controlled as to preclude contamination of product contact surfaces. There shall be no cross connection between safe water lines and unsafe water lines or between public and private water supplies. Bacteriological examinations shall be made of the sanitary water supply at least twice a year, or as often as necessary to determine purity and suitability for use in manufacturing dairy products. Such tests shall be made by a USDA or State agency laboratory except for supplies that are regularly tested for purity and bacteriological quality, and approved by the local health officer. The results of all water tests shall be kept on file at the plant for which the test was performed.

The location, construction, and operation of any well shall comply with regulations of the appropriate agency.

(b) Drinking-water facilities.--Drinking-water facilities of a sanitary type shall be provided in the plant and shall be conveniently located.

(c) Hand-washing facilities.--Convenient hand-washing facilities shall be provided, including hot and cold running water, soap or other detergents, and sanitary single service towels or air driers. Such accommodations shall be located in or adjacent to toilet and dressing rooms and also at such other places in the plant as may be essential to the cleanliness of all personnel handling products. Vats for washing equipment or utensils

shall not be used as hand-washing facilities. Self-Closing metal or plastic containers shall be provided for used towels and other wastes.

(d) Steam.--Steam shall be supplied in sufficient volume and pressure for satisfactory operation of each applicable piece of equipment. Culinary steam used in direct contact with milk or dairy products shall be free from harmful substances or extraneous material and only non-toxic boiler compounds shall be used, or a secondary steam generator shall be used in which soft water is converted to steam and no boiler compounds are used. Steam traps, strainers and condensate traps shall be used wherever applicable to insure a satisfactory and safe steam supply. Culinary steam shall comply with the recommended practices for "Producing Culinary Steam for Processing Milk and Milk Products" as published by the National Association of Dairy Equipment Manufacturers, Washington, D. C., April 1963 or latest revision thereof.

(e) Air under pressure.--The method for supplying air under pressure which comes in contact with milk or dairy products or any product contact surface shall comply with the 3-A Accepted Practices for Supplying Air Under Pressure. The air used at the point of application shall be free from volatile substances, volatiles which may impart any flavor or odor to the products, and extraneous or harmful substances.

(f) Disposal of wastes.--Dairy wastes shall be properly disposed of from the plant and premises. The sewer system shall have sufficient slope and capacity to readily remove all waste from the various processing operations. Where a public sewer is not available, all wastes shall be

properly disposed of so as not to contaminate milk equipment or to create a nuisance or public health hazard. Containers used for the collection and holding of wastes shall be constructed of metal, plastic, or other equally impervious material and kept covered with tight fitting lids and placed outside the plant on a concrete slab or on a rack raised at least 12 inches, alternatively waste containers may be kept inside a suitably enclosed, clean and fly proof room. Solid wastes shall be disposed of regularly and the containers cleaned before re-use. Accumulation of dry waste paper and cardboard shall be kept to a minimum. The paper shall be burned at the plant in a properly constructed incinerator or compressed or bagged and hauled away.

53.128 Equipment and utensils.-- (a) General Construction, repair and installation.-- The equipment and utensils used for the processing of milk and manufacture of dairy products shall be constructed to be readily demountable where necessary for cleaning and sanitizing. The product contact surfaces of all utensils and equipment such as holding tanks, pasteurizers, coolers, vats, agitators, pumps, sanitary piping and fittings or any specialized equipment shall be constructed of stainless steel, or other equally corrosion resistant material. Non-metallic parts other than glass having product contact surfaces shall meet 3-A Sanitary Standards for Plastic or Rubber and Rubber Like Materials.

All equipment and piping shall be designed and installed so as to be easily accessible for cleaning, and shall be kept in good repair, free from cracks and corroded surfaces. New or rearranged

equipment, shall be set away from any wall or spaced in such a manner as to facilitate proper cleaning and to maintain good housekeeping. All parts or interior surfaces of equipment, pipes, (except certain piping cleaned-in-place) or fittings, including valves and connections shall be accessible for inspection. Milk and dairy product pumps shall be of a sanitary type and easily dismantled for cleaning or shall be of specially approved construction to allow effective cleaning in place.

All C.I.P. systems shall comply with the 3-A Accepted Practices for Permanently Installed Sanitary Product, Pipelines and Cleaning Systems.

(b) Weigh cans and receiving tanks.--Weigh cans and receiving tanks shall meet the 3-A Sanitary Standards and shall be easily accessible for cleaning both inside and outside and shall be elevated above the floor and protected sufficiently with the necessary covers or baffles to prevent contamination from splash, condensate and drippage. Where necessary to provide easy access for cleaning of floors and adjacent wall areas, the receiving tank shall be equipped with wheels or casters to allow easy removal.

(c) Can washers.--Can washers shall have sufficient capacity and ability to discharge a clean dry can and cover and shall be kept properly timed in accordance with the instructions of the manufacturer. They should be equipped with proper temperature controls on the wash and rinse tanks and the following additional devices: prerinse jet, wash tank solution feeder can sanitizing attachment, forced air vapor exhaust, and removable air filter on drying chamber. The water and steam lines supplying the washer

shall maintain a reasonably uniform pressure and if necessary be equipped with pressure regulating valves. The steam pressure to the can washer should be not less than 80 pounds, and the temperature of the wash tank solution should not exceed 140° F.

(d) Product storage tanks or vats.--Storage tanks or vats shall be fully enclosed or tightly covered and well insulated. The entire interior surface, agitator and all appurtenances shall be accessible for thorough cleaning and inspection. Any opening at the top of the tank or vat including the entrance of the shaft shall be suitably protected against the entrance of dust, moisture, insects, oil or grease. The sight glasses, if used, shall be sound, clear, and in good repair. Vats which have hinged covers shall be so designed that moisture, or dust on the surface cannot enter the vat when the covers are raised. If the storage tanks or vats are equipped with air agitation, the system shall be of an approved type and properly installed in accordance with the 3-A Accepted Practices for Supplying Air Under Pressure. Storage tanks or vats intended to hold product for longer than approximately 8 hours shall be equipped with adequate refrigeration and/or have adequate insulation. All storage tanks or vats should meet the appropriate 3-A Sanitary Standards and shall be equipped with thermometers in good operating order.

(e) Separators.--All product contact surfaces of separators shall be free from rust and pits and insofar as practicable shall be of stainless steel or other equally noncorrosive metals.

(f) Coil or dome type batch pasteurizers.--Coil or dome type batch pasteurizers shall be stainless steel lined and if the coil is not stainless steel or other equally noncorrosive metal it shall be properly tinned over the entire surface. Sanitary seal assemblies at the shaft ends of coil vats shall be of the removable type, except that existing equipment not provided with this type gland will be acceptable if the packing glands are maintained and operated without adverse effects. New or replacement units shall be provided with removable packing glands. Dome type pasteurizer agitators shall be stainless steel except that any non-metallic parts shall meet 3-A Sanitary Standards for Plastic or Rubber and Rubberlike Materials, as applicable. Each pasteurizer used for heating product at 165° F. or lower for 30 minutes or less shall be equipped with space-heating equipment and the necessary thermometers to insure a temperature at least 5° F. above that required for pasteurization of the product. There shall be adequate means of controlling the temperature of the heating medium. Batch pasteurizers shall have temperature indicating and recording devices.

(g) High-temperature short-time pasteurizers.-- When pasteurization is intended or required, an approved timing pump or device, recorder-controller, automatic flow diversion valve and holding tube or its equivalent, if not a part of the existing equipment, shall be installed on all HTST equipment used for pasteurization, to assure complete pasteurization. The entire facility shall meet the 3-A Accepted Practices for the Sanitary Construction, Installation, Testing and Operation of High-Temperature Short Time Pasteurizers. After the HTST unit has been

tested according to the 3-A Accepted Practices, the timing pump or device and the recorder controller shall be sealed at the correct setting to assure pasteurization. Sealing of the HTST unit shall be performed by the control authority having jurisdiction. When direct steam pasteurizers are used, the steam, prior to entering the product, shall be conducted through a steam strainer and a steam purifier equipped with a steam trap and only steam meeting the requirements for culinary steam shall be used.

(h) Thermometers and recorders.-- (1) Indicating thermometers.--

(i) Long stem indicating thermometers which are accurate within  $0.5^{\circ}$  F., plus or minus, for the applicable temperature range, shall be provided for checking the temperature of pasteurization and cooling of products in vats and checking the accuracy of recording thermometers.

(ii) Short stem indicating thermometers, which are accurate within  $0.5^{\circ}$  F., plus or minus, for the applicable temperature range, shall be installed in the proper stationary position in all HTST, and dome type pasteurizers. Storage tanks where temperature readings are required shall have thermometers which are accurate within  $2.0^{\circ}$  F., plus or minus

(iii) Air space indicating thermometers, where applicable, which are accurate within  $1.0^{\circ}$  F., plus or minus, for the proper temperature range shall also be installed above the surface of the products pasteurized in vats, to make certain that the temperature of the foam and/or air above the products pasteurized also received the required minimum temperature treatment.

(2) Recording thermometers.--(i) HTST recording thermometers that are accurate within  $1^{\circ}$  F., plus or minus, for the applicable temperature range, shall be used on each heat treating, pasteurizing or sterilizing unit to record the heating process.

(ii) Additional use of recording thermometers accurate within 2° F., plus or minus may be required where a record of temperature or time of cooling and holding is of significant importance.

(i) Surface coolers. Surface coolers shall be equipped with hinged or removable covers for the protection of the product. The edges of the fins shall be so designed as to divert condensate on non-product contact surfaces away from product contact surfaces. All gaskets or swivel connections shall be leak proof.

(j) Plate type heat exchangers.--Plate type heat exchanger shall meet the 3-A Sanitary Standards for Construction and Installation. All gaskets shall be tight and kept in good operating order. Plates shall be opened for inspection by the operator at sufficiently frequent intervals<sup>to determine</sup> if the equipment is clean and in satisfactory condition. A cleaning regimen shall be posted to insure proper cleaning procedures between inspection periods.

(k) Internal return tubular heat exchangers.--Internal return tubular heat exchangers should meet the 3-A Sanitary Standards for Construction and Installation.

(l) Pumps.--Pumps used for milk, and dairy products shall be of the sanitary type and constructed to meet 3-A Sanitary Standards. Unless pumps are specifically designed for effective cleaning-in-place they shall be disassembled and thoroughly cleaned after use.

(m) Scales.--(1) Small capacity scales shall be capable of the following accuracy, and shall be graduated in no higher than one ounce graduations.

<u>Test load in pounds</u>	<u>Tolerance in ounces</u>
1 - 2	1/16
2 - 4	1/8
4 - 7	3/16
7 - 10	1/4
10 - 15	5/16
15 - 20	3/8

20 - 30	1/2
30 - 40	5/8
40 - 50	3/4
50 - 75	1

(2) Large capacity scales shall be capable of the following accuracy, and shall be graduated in no higher than 1/4 pound graduations.

<u>Test Load Capacity in Pounds</u>	<u>Tolerance in Ounces</u>
75-100	1 1/2
100-150	2
150-200	3
200-300	4

(n) Homogenizers.--Homogenizers and High Pressure Pumps of the Plunger Type shall meet the 3-A Sanitary Standards.

(o) New equipment and replacements.--New equipment and replacements, including all plastic parts and rubber and rubberlike materials for parts and gaskets having product contact surfaces, shall meet the then current 3-A Sanitary Standards. If 3-A Sanitary Standards are not available, such equipment and replacements shall meet the general requirements of this section.

(p) Vacuum chamber.--The vacuum chamber, as used for flavor control, shall be made of stainless steel or other equally non corrosive metal. The unit shall be constructed to facilitate cleaning and all product contact surfaces shall be accessible for inspection. It shall be equipped with a vacuum breaker and a check valve at the product discharge line. If direct steam is used, it should also be equipped with a ratio controller to regulate the composition of the product. Only steam which meets the requirements for culinary steam shall be used. The incoming steam supply shall be regulated by an automatic solenoid valve which will cut off the steam supply in the event the flow diversion valve of the HTST pasteurizer is not in the forward flow position. Condensers when used shall be equipped with a water level control and an automatic safety shutoff valve.

#### PERSONNEL, CLEANLINESS AND HEALTH

58.129 Cleanliness.-- All employees shall wash their hands before beginning work and upon returning to work after using toilet

facilities, eating, smoking or otherwise soiling their hands. They shall keep their hands clean and follow good hygienic practices while on duty. Expectorating or use of tobacco in any form shall be prohibited in each room and compartment where any milk, dairy products, or supplies are prepared, stored or otherwise handled. Clean white or light-colored washable outer garments and caps (paper caps or hair nets acceptable) shall be worn by all persons engaged in receiving, testing, processing milk, manufacturing, packaging or handling dairy products.

58.130 Health.--No person afflicted with a communicable disease shall be permitted in any room or compartment where milk and dairy products are prepared, manufactured or otherwise handled. No person who has a discharging or infected wound, sore or lesion on hands, arms, or other exposed portion of the body shall work in any dairy processing rooms or in any capacity resulting in contact with milk, or dairy products. Each employee whose work brings him in contact with the processing or handling of dairy products, containers or equipment shall have a medical and physical examination by a registered physician or by the local department of health at the time of employment. In addition an employee returning to work following illness from a communicable disease shall have a certificate from the attending physician to establish proof of complete recovery. Medical certificates attesting the fact that the employee when last examined was free from communicable disease shall be kept on file at the plant office.

#### PROTECTION AND TRANSPORT OF RAW MILK AND CREAM

58.131 Equipment and facilities.-- (a) .--(1) Milk cans.--Cans used in transporting milk from dairy farm to plant shall be of such construction (preferably seamless with umbrella lids) as to be easily cleaned, and shall be inspected, repaired, and replaced as necessary to exclude substantially the use of cans and lids with open seams, cracks, rust, milkstone, or any unsanitary condition. Adequate provisions should be made so that milk in cans will be cooled immediately after milking to 60° F. or lower unless delivered to the plant within two hours after milking.

(2) Farm bulk tanks.--Farm bulk tanks should meet 3-A Sanitary Standards for construction and should be installed preferably in a milk house in accordance with the requirements of the regulatory agency in jurisdiction. The bulk tanks should be designed and equipped with refrigeration to permit the cooling of the milk to 40° F. or lower within two hours after milking, and maintain it at 45° F. or below until picked up.

(b).--(1) Transporting milk or cream.--Vehicles used for the transportation of can milk or cream shall be of the enclosed type, constructed and operated to protect the product from extreme temperature, dust, or other adverse conditions and they shall be kept clean. Decking boards or racks shall be provided where more than one tier of cans is carried. Cans or vehicles used for the transportation of milk from the farm to the plant shall not be used for transporting skim milk, buttermilk, or whey to producers.

(2) Transport tanks.--The exterior shell shall be clean and free from open seams or cracks which would permit liquid to enter the jacket. The interior shell shall be stainless steel and so constructed that it will not buckle, sag or prevent complete drainage. All product contact surfaces shall be smooth, easily cleaned and maintained in good repair. The pump and hose cabinet shall be fully enclosed with tight fitting doors and the inlet and outlet shall be provided with dust covers to give adequate protection from road dust. New and replacement transport tanks shall meet 3-A Sanitary Standards for Milk Transport Tanks.

(3) Facilities for cleaning and sanitizing.--Enclosed or covered facilities shall be available for washing and sanitizing of transport tanks, piping, and accessories, at central locations or at all plants that receive or ship milk or milk products in transport tanks.

(4) Transfer of milk to transport tank.--Milk shall be transferred under sanitary conditions from farm bulk tanks through stainless steel piping or approved tubing. The sanitary piping and tubing shall be capped when not in use.

#### QUALITY SPECIFICATIONS FOR RAW MILK

58.132 Basis for classification.--Raw milk for manufacturing purposes, from all individual producers, shall be based on the following: organoleptic examination (appearance and odor), quality control tests for sediment content, and bacterial estimate. In addition, milk from cows treated with antibiotics shall be excluded for such period of time as is necessary to have the milk free from antibiotics. All milk received from producers shall not exceed Federal Food and Drug Administration's established limits for pesticide residues. Producers shall be promptly notified of any shipment or portion thereof of their milk that fails to meet any of these quality specifications.

58.133 Appearance and odor.--The appearance and odor of acceptable raw milk shall be normal, fresh and sweet. The milk shall be free from objectionable feed and other off-odors that would adversely affect the finished product, and it shall not show any abnormal condition (including, but not limited to curdled, ropy, bloody, or mastitic condition), as indicated by sight, odor, or other test procedures.

58.134 Sediment content.--(a) Method of testing. Methods for determining sediment content of milk shall be those described in the latest edition of Standard Methods. For the testing of milk in cans, the off-the bottom method shall be used. For testing bulk milk, a mixed one-pint sample shall be tested. Sediment content shall be based on comparison with applicable charts of Sediment Standards described in Subpart T 58.2728 through 58.2731 of this part.

(b) Sediment content classification of discs.--Milk in cans and in farm bulk tanks shall be classified for sediment content as follows:

- Sediment (off-the-bottom method): (1-1/8 inch diameter disc)
- No. 1 - USDA Sediment Standard (not to exceed) 0.50 mg. (Acceptable)
- No. 2 - USDA Sediment Standard (not to exceed) 1.50 mg. (Acceptable)
- No. 3 - USDA Sediment Standard (not to exceed) 2.50 mg.  
(Probational) not over 10 days
- No. 4 - USDA Sediment Standard (over 2.50 mg.) (Reject)
- Sediment (mixed sample): (0.40 inch diameter disc)
- No. 1 - USDA Sediment Standard (not to exceed) 0.0625 mg.  
(0.50 mg. equiv.) - (Acceptable)
- No. 2 - USDA Sediment Standard (not to exceed) 0.1875 mg.  
(1.50 mg. equiv.) (Acceptable)
- No. 3 - USDA Sediment Standard (not to exceed) 0.3125 mg.  
(2.50 mg. equiv.) (Probational) not over 10 days
- No. 4 - USDA Sediment Standard (over) 0.3125 mg. (2.5 mg. equiv.)  
(Reject)

(c) Frequency of tests.--At least once each month, at irregular intervals, the milk from each producer shall be tested as follows: (1) Milk in cans. One or more cans of milk selected at random from each producer. (2) Milk in farm bulk tanks. A sample shall be taken from each farm bulk tank.

(d) Acceptance or rejection of milk.--If the sediment disc is classified as No. 1, No. 2, or No. 3 the producer's milk may be accepted. If the sediment disc is classified No. 4 the milk shall be rejected:  
Provided that if the shipment of milk is commingled with other milk in a transport tank the next shipment shall not be accepted until its quality has been determined at the farm before being picked up; however, if the person making the test is unable to get to the farm before the next shipment it may be accepted but no further shipments shall be accepted unless the milk meets the requirements of No. 3 or better. In the case of milk

classified as No. 3 or No. 4, if in cans, all cans shall be tested. Producers of No. 3 or No. 4 milk (cans or bulk) shall be notified immediately and shall be furnished applicable sediment discs and the next shipment shall be tested.

(e) Retests.--On test of the next shipment (if in cans, all cans shall be tested) milk classified as No. 1, No. 2, or No. 3 may be accepted, but No. 4 milk shall be rejected. Retests of bulk milk classified as No. 4 shall be made at the farm before pickup. The producers of No. 3 or No. 4 milk shall be notified immediately, furnished applicable sediment discs and the next shipment tested.

This procedure of retesting successive shipments and accepting probational (No. 3) milk and rejecting No. 4 milk may be continued for not to exceed 10 calendar days. If at the end of this time all of the producer's milk does not meet the acceptable sediment content classification (No. 1 or No. 2) it shall be excluded from product.

58.135 Bacterial estimate.--(a) Method of testing. Methods for determining the bacterial estimate of milk shall be those described in the latest edition of Standard Methods for the Examination of Dairy Products.

(b) Bacterial estimate classification.--Milk shall be classified for bacterial estimate by one of the following methods:

<u>Bacterial Estimate Classification</u>	<u>Direct</u>		
	<u>Microscopic Clump Count or Standard Plate Count</u>	<u>Methylene Blue test Decolorized in</u>	<u>Resazurin Reduction Time to Munsell Color Standard 50 7/4</u>
No. 1	not over 500,000 per ml.	not less than 4-1/2 hours	not less than 2-1/4 hours

<u>Bacterial Estimate Classification</u>	<u>Direct Microscopic Clump Count or Standard Plate Count</u>	<u>Methylene Blue Test Decolorized in</u>	<u>Resazurin Reduction Time to Munsell Color Standard 5p7/4</u>
No. 2	not over 3,000,000	not less than 2-1/2 hours	not less than 1-1/2 hours
Undergrade	over 3,000,000	less than 2-1/2 hours	less than 1-1/2 hours

(c) Frequency of tests.--At least once each month, at irregular intervals, a mixed sample of each producer's milk shall be tested.

(d) Acceptance of milk.--If the sample of milk is classified as No. 1 or No. 2 the producer's milk may be accepted without qualification. If the sample is classified as "Undergrade".(probational) the producer's milk may be accepted for a temporary period of four weeks. The producer of "Undergrade" milk shall be notified immediately.

(e) Retests. Additional samples shall be tested and classified at least weekly and the producer notified immediately of the results. This procedure of testing at least weekly and accepting "Undergrade" milk may be continued for a time period not exceeding four weeks. If at the end of this time the producer's milk does not meet the acceptable bacterial estimate requirements (No. 1 or No. 2), it shall be excluded from product.

58.136 Rejected milk.--A plant shall reject specific milk from a producer if it fails to meet the requirements for sight and odor (section 58.133) or if it is classified No. 4 for sediment content (section 58.135). All reject milk in cans shall be identified with a reject tag.

58.137 Excluded milk.--A plant shall not accept milk from a producer for use in products:

- (a) If a new producer's milk does not meet the requirements for acceptable milk (sections 58.134 and 58.135); or
- (b) If the milk has been in a probational (No. 3) sediment content classification for more than ten calendar days (section 58.134); or
- (c) If the milk has been classified "Undergrade" for bacterial estimate for more than four successive weeks (section 58.135).

58.138 Quality testing of milk from new producers.--An examination shall be made on the first shipment of milk from producers shipping milk to a plant for the first time or after a period of nonshipment. The milk shall meet the requirements for "acceptable milk" (sections 58.134 and 58.135). Thereafter, the milk shall be tested in accordance with the procedure established for regular shippers.

58.139 Record of tests.--Accurate records, listing the results of quality tests of each producer, shall be kept on file at the receiving plant where performed and shall be available for examination by the inspector.

58.140 Field service.--A representative of the plant should arrange to promptly visit each producer shipping milk which does not meet the requirements for acceptable milk, for the purpose of inspecting the equipment, utensils and facilities at the farm and to offer constructive assistance for improvement in the quality of the milk. A representative of the plant should visit each producer as often as practicable to assist in and encourage the production of high quality milk.

58.141 Alternate quality control program.--When a plant has in operation an acceptable quality program, at the producer level, which is approved by the Administrator as being effective in obtaining results comparable to or higher than the quality program as outlined above for milk or cream, then such a program may be accepted in lieu of the program herein prescribed.

#### OPERATIONS AND OPERATING PROCEDURES

58.142 Product quality and stability.--The receiving, holding and processing of milk and cream and the manufacturing, handling, packaging, storing and delivery of dairy products shall be in accordance with clean and sanitary methods, consistent with good commercial practices to promote the production of the highest quality of finished product and improve product stability.

58.143 Raw product storage.-- All milk shall be held and processed under conditions and at temperatures that will avoid contamination and rapid deterioration. Drip milk from can washers or any other source shall not be used for the manufacture of dairy products. Bulk milk in storage tanks within the dairy plant shall be handled in such a manner as to minimize bacterial increase and shall be maintained at 45° F. or lower until processing begins. This does not preclude holding milk at higher temperatures for a period of time, where applicable to particular manufacturing or processing practices.

The bacteriological quality of commingled milk in storage tanks should be No. 2 or better.

58.144 Pasteurization or sterilization.--When pasteurization or sterilization is intended or required, or when a product is designated "pasteurized" or "sterilized" every particle of the product shall be subjected to such temperatures and holding periods as will assure proper pasteurization or sterilization of the product. The heat treatment by either process shall be sufficient to insure public health safety and to assure adequate keeping quality, yet retaining the most desirable flavor and body characteristics of the finished product. The phenol value of check test samples of pasteurized finished product shall be no greater than the maximum specified for the particular product as determined and specified by the phosphatase test method prescribed in the latest edition of "Official Methods of Analysis of the Association of Official Agricultural Chemists."

58.145 Composition and wholesomeness.--All necessary precautions shall be taken to prevent contamination or adulteration of the milk or dairy products during manufacturing. All substances and ingredients used in the processing or manufacturing of any dairy product shall be subject to inspection and shall be wholesome and practically free from impurities. The finished products shall comply with the requirements of the Federal Food, Drug, and Cosmetic Act as to their composition and wholesomeness.

58.146 Cleaning and sanitizing treatment.-- (a) Equipment and utensils. The equipment, sanitary piping and utensils used in receiving and processing of the milk, and manufacturing and handling of the product shall be maintained in a sanitary condition. Sanitary seal assemblies shall be removable on all agitators, pumps, and vats <sup>and</sup> <sub>A</sub> shall be inspected at regular intervals and kept clean. Unless other provisions are recommended in the following supplement sections, all equipment not designed for

C.I.P. cleaning shall be disassembled after each day's use for thorough cleaning. Dairy cleaners, detergents, wetting agents or sanitizing agents, or other similar materials which will not contaminate or adversely affect the products may be used. Steel wool or metal sponges shall not be used in the cleaning of any dairy equipment or utensils. All product contact surfaces shall be subjected to an effective sanitizing treatment immediately prior to use, except where dry cleaning is permitted. Utensils and portable equipment used in processing and manufacturing operations shall be stored above the floor in clean, dry locations and in a self draining position on racks constructed of impervious corrosion-resistant material.

C.I.P. cleaning, including spray-ball systems, shall be used only on equipment and pipeline systems which have been designed and engineered for that purpose. When such cleaning is used, careful attention shall be given to the proper procedures to assure satisfactory cleaning. All C.I.P. installations and cleaning procedures shall be in accordance with 3-A Suggested Method for the Installation and Cleaning of Cleaned-In-Place Sanitary Milk Pipelines for Milk and Milk Products Plants. Because of the possibilities of corrosion, the recommendations of the cleaning compound manufacturer should be followed with respect to time, temperature and concentration of specific acid or alkaline solutions and bactericides. The established cleaning procedure shall be posted and followed. Such cleaning operation should be preceded by a thorough rinse at approximately 110-115° F. continuously discarding the water. Following the circulation of the cleaning solution the equipment and lines shall be thoroughly rinsed with lukewarm water and checked for effectiveness of cleaning. All caps, plugs, special fittings, valve seats, cross ends, pumps, plates,

and tee ends shall be opened or removed and brushed clean. Immediately prior to starting the product flow, the product contact surfaces shall be given bactericidal treatment. Plates and pumps should be left open overnight, assembled and sanitized prior to use.

(b) Milk cans and can washers.--Milk cans and lids shall be cleaned, sanitized and dried before returning to producers. Inspection, repair or replacement of cans and lids shall be adequate to substantially exclude from use cans and lids showing open seams, cracks, rust condition, milkstone or any unsanitary condition.

Washers shall be maintained in a clean and satisfactory operating condition and kept free from accumulation of scale or debris which will adversely affect the efficiency of the washer. Only washing compounds which are compatible with the water, for effective cleaning, should be used. The can washer should be checked regularly during the run for proper operation. At the end of the day, the wash and rinse tanks should be drained and cleaned, jets and strainers cleaned, air filters checked and changed or cleaned if needed, and checks should be made for proper adjustment and condition of mechanical parts.

(c) Milk transport tanks.--A covered or enclosed wash dock and cleaning and sanitizing facilities shall be available to all plants that receive or ship milk in tanks. Milk transport tanks, sanitary piping, fittings, and pumps shall be cleaned and sanitized at least once each day, after use: provided that, if they are not to be used immediately after emptying a load of milk, they shall be washed promptly after use and given bactericidal treatment immediately before use. After being washed and sanitized, each tank should be identified by a tag attached to the outlet valve, bearing the following information: plant and specific location where cleaned, date and time of day of washing and sanitizing, and name of

person who washed and name of person who sanitized the tank. The tag shall not be removed until the tank is again washed and sanitized.

(d) Building.--All windows, glass, partitions, and skylights shall be washed as often as necessary to keep them clean. Cracked or broken glass shall be replaced promptly. The walls, ceilings and doors shall be washed periodically and kept free from soil and unsightly conditions. The shelves and ledges shall be wiped or vacuumed as often as necessary to keep them free from dust and debris. The material picked up by the vacuum cleaners shall be disposed of by burning or other proper method to destroy any insects that might be present.

58.147 Insect and rodent control program.--In addition to any commercial pest control service, if one is utilized, a specially designated employee shall be made responsible for the performance of a regularly scheduled insect and rodent control program. Poisonous substances, insecticides and rodenticides shall be properly labeled, and shall be handled, stored and used in such a manner as not to create a public health hazard.

58.148 Plant records.--Adequate plant records shall be maintained of all required tests and analyses performed in the laboratory or throughout the plant during processing and manufacturing, on all raw milk receipts and dairy products. Such records shall be available for examination at all reasonable times by the inspector. The following are the records which shall be maintained for examination at the plant or receiving station where performed.

(a) Sediment and bacterial test results on raw milk from each producer.

Retain for 12 months.

- (1) Routine tests and monthly summary of all producers showing number and percent of total in each class.
- (2) Retests, if initial test places milk in probationary status.
- (3) Rejections of raw milk over No. 3 in quality.

(b) Laboratory and plant quality control tests of dairy products as required in this part. Retain for 12 months.

- (1) Bacteriological
  - (2) Chemical analysis
  - (3) Keeping quality
- (c) Pasteurization recorder charts. Retain for 6 months.
- (d) Water supply test certificate. Retain current copy for 6 months.
- (e) Employee health certificate. Retain most recent copy until employee is no longer employed by plant.

58.149 Alternate quality control programs for dairy products. (a) When

a plant has in operation an acceptable quality control program which is approved by the Administrator as being effective in obtaining results comparable to or higher than the quality control program as outlined in this subpart, then such a program may be accepted in lieu of the program herein prescribed.

(b) Where a minimum number of samples per batch of product, or per unit of time on continuous production runs are not specified, the phrase "as many samples shall be taken as is necessary to assure compliance to specific quality requirements" is used. Acceptable performance of this would be any method approved by the Administrator as meeting sound statistical methods of selecting samples and determining the number of samples to be taken.

PACKAGING AND GENERAL IDENTIFICATION

58.150 Containers.-- The size, style, and type of packaging used for dairy products shall be commercially acceptable containers and packaging materials which will satisfactorily cover and protect the quality of the contents during storage and regular channels of trade and under normal conditions of handling. The weights and shape within each size or style shall be as nearly uniform as is practical.

Packaging materials for dairy products shall be selected which will provide sufficiently low permeability to air and vapor to prevent the formation of mold growth and surface oxidation. In addition, the wrapper should be resistant to puncturing, tearing, cracking or breaking under normal conditions of handling, shipping and storage. When special type packaging is used, the instructions of the manufacturers shall be followed closely as to its application and methods of closure.

58.151 Packaging and repackaging.--Packaging dairy products or cutting and repackaging all styles of dairy products shall be conducted under rigid sanitary conditions. The atmosphere of the packaging rooms, the equipment and packaging material shall be practically free from mold and bacterial contamination. Methods for checking the level of contamination shall be as prescribed by the latest edition of Standard Methods or by other satisfactory methods approved by the Administrator.

When officially graded bulk dairy products are to be repackaged into consumer type packages with official grade labels or other official identification, a supervisor of packaging shall be required, see Subpart A of this part. (Title 7, Ch. I, Pt. 58, sec' 58.2 and 58.52 of the Code of Federal Regulations). If the packaging or repackaging is done in a plant other than the one in which the dairy product is manufactured, the plant, equipment, facilities and personnel shall meet the same requirements as outlined in this subpart.

58.152 General identification.--All commercial bulk packages containing dairy products manufactured under the provisions of this subpart shall be adequately and legibly marked with the name of the product, net weight, name and address of processor or manufacturer or other assigned plant identification, lot number, and any other identification as may be required. Consumer packaged product shall be legibly marked with the name of the product, net weight, name and address of packer, manufacturer or distributor and such other identification as may be required by the regulatory agency in jurisdiction.

## STORAGE OF FINISHED PRODUCT

58.153 Dry storage.--The product shall be stored at least 18 inches from the wall in aisles, rows, or sections and lots, in such a manner as to be orderly and easily accessible for inspection. Rooms should be cleaned regularly. It is recommended that dunnage or pallets be used when practical. Care shall be taken in the storage of any other product foreign to dairy products in the same room, in order to prevent impairment or damage to the dairy product from mold, absorbed odors, or vermin or insect infestation. Control of humidity and temperature shall be maintained at all times, consistent with good commercial practices, to prevent conditions detrimental to the product and container.

58.154 Refrigerated storage.--The finished product shall be placed on shelves, dunnage or pallets and properly identified. It shall be stored under temperatures that will best maintain the initial quality. The product shall not be exposed to anything from which it might absorb any foreign odors or be contaminated by drippage or condensation.

## INSPECTION, GRADING AND OFFICIAL IDENTIFICATION

58.155 Grading.--Dairy products which have been processed or manufactured in accordance with the provisions of this subpart may be graded by the grader in accordance with the U. S. Standards for Grades. Laboratory analyses, when required in determining the final grade shall be conducted in an approved laboratory.

58.156 Inspection.-- Dairy products, which have been processed or manufactured in an approved plant, and for which there are no official U. S. Standards for Grades, shall be inspected for quality by the inspector in accordance with contract requirements or product specifications established by the U. S. Department of Agriculture or other Federal agency or buyer and seller. Laboratory analysis when required shall be conducted in an approved laboratory.

58.157 Inspection or grading certificates.-- All dairy products which have been processed or manufactured, packaged and inspected or graded in accordance with the provision of this part may be covered by an inspection or grading certificate issued by the inspector or grader.

58.158 Official identification.--(a) Application for authority to apply official identification to packaging material or containers shall be made in accordance with the provisions of Subpart A of this part.

(Title 7, Ch. I, Pt. 58, secs. 58.49-58.57 of the Code of Federal Regulations).

(b) Only dairy products received, processed, or manufactured in accordance with the specifications contained in this subpart and inspected and/or graded in accordance with the provisions of this part may be identified with official identification.

## EXPLANATION OF TERMS

58.160 Terms.--(a) Fresh and sweet.--Free from "old milk" flavor and odor of developed acidity or other off-flavors or off-odors.

(b) Normal feed.--Regional feed flavors, such as alfalfa, clover, silage, or similar feeds or grasses (weed flavors, such as peppergrass, French weed, onion, garlic, or other obnoxious weeds, excluded).

(c) Off-flavors or off-odors.--Flavors or odors, such as utensil, bitter, barny, or other associated defects when present to a degree readily detectable.

(d) Developed acidity.--An apparent increase from the normal acidity of the milk to a degree of flavor and odor which is detectable

(e) Extraneous-matter.--Foreign substances, such as filth, hair insects and fragments thereof, and rodents, and materials, such as metal, fiber, wood, and glass.

(f) Sediment.--Fine particles of material other than the foreign substances and materials defined in paragraph (e) of this section

(g) C.I.P.--The abbreviation of an approved system of cleaning equipment or pipelines called "Cleaned-in-Place."

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING, PROCESSING AND PACKAGING NONFAT DRY MILK, DRY WHOLE  
MILK, DRY BUTTERMILK AND DRY WHEY

DEFINITIONS

58.205 Meaning of words.--For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa, as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning:

- (a) Nonfat dry milk.--The pasteurized product resulting from the removal of fat and water from milk, and contains the lactose, milk proteins, and milk minerals in the same relative proportions as in the fresh milk from which made. It shall not contain buttermilk, or any added preservative, neutralizing agent or other chemical.
- (b) Instant nonfat dry milk.--Nonfat dry milk which has been produced in such a manner as to substantially improve its dispersing and reliquification characteristics over that produced by the conventional process.
- (c) Dry whole milk.--The pasteurized product resulting from the removal of water from milk and contains the lactose, milk proteins, milk fat, and milk minerals in the same relative proportions as in the fresh milk from which made. The milk may be standardized but shall not contain buttermilk, or any added preservative, neutralizing agent or other chemicals.
- (d) Dry buttermilk.--The product resulting from drying liquid buttermilk, derived from the manufacture of sweet cream butter, which has been pasteurized either before or during the process of manufacture, with or without the addition of lactic culture and to which no alkali or other chemical preservative has been added.

(e) Dry whey.-- The product resulting from spray drying fresh, cheese whey which has been pasteurized either before or during the process of manufacture, and to which no alkali or other chemical preservative has been added.

#### ROOMS AND COMPARTMENTS

58.210 Dry storage of product.--Storage rooms for the dry storage of product shall be adequate in size, kept clean, orderly, free from rodents, insects, and mold, and maintained in good repair. They shall be adequately lighted and ventilated. The ceilings, walls, beams and floors shall be free from structural defects and inaccessible false areas which may harbor insects.

58.211 Packaging room for bulk products.--A separate room or area shall be provided for filling bulk bins, drums, bags, or other bulk containers, and shall be constructed in accordance with section 58.126 of Subpart B. The number of control panels and switch boxes in this area shall be kept to a minimum. Control panels shall be mounted a sufficient distance from the walls to facilitate cleaning or shall be mounted in the wall and provided with tight fitting removable doors to facilitate cleaning. An adequate exhaust system shall be provided to minimize the accumulation of product dust within the packaging room and where needed, a dust collector shall be provided and properly maintained to keep roofs and outside areas free of dry product. Only packaging materials that are used within a day's operation may be kept in the packaging area. These materials shall be kept on metal racks or tables at least six inches off the floor. Unnecessary fixtures, equipment, or false areas which may collect dust and harbor insects, shall not be allowed in the packaging room.

58.212 Hopper or dump room.--A separate room shall be provided for the transfer of bulk dry dairy products from bags or drums to the hoppers and conveyors which lead to the fillers. This room shall meet the same requirements for construction and facilities as the bulk packaging operation. Areas and facilities provided for the transfer of dry dairy products from portable bulk bins will be acceptable if gasketed surfaces or direct connections are used that appreciably eliminate the escape of product into the area.

58.213 Repackaging room.--A separate room shall be provided for the filling of small packages and shall meet the same requirements for construction and facilities as the bulk packaging operation.

#### EQUIPMENT AND UTENSILS

58.214 General construction repair, and installation.--All equipment and utensils necessary to the manufacture of dry milk products, including pasteurizer, timing-pump or device, flow diversion valve and recorder controller, shall meet the same general requirements as outlined in section 58.128 of this Subpart. In addition, for certain other equipment the following requirements shall be met.

58.215 Pre-heaters.-- The pre-heaters shall be of stainless steel or other equally corrosion resistant material, cleanable, accessible for inspection and shall be equipped with suitable automatic temperature controls.

58.216 Hotwells.--The hotwells shall be enclosed or covered and equipped with indicating thermometers either in the hotwell or in the hot milk inlet line to the hotwell and if used for holding high heat products they should also have recorders.

58.217 Evaporators and/or vacuum pans.--Open type evaporators and/or vacuum pans shall be equipped with an automatic condenser water level control, barometric leg, or so constructed so as to prevent water from entering the product, and should meet the applicable 3-A Sanitary Standards. When enclosed type condensers are used, no special controls are needed to prevent water from entering the product.

58.218 Surge tanks.--If surge tanks are used for hot milk, and temperatures of product including foam being held in the surge tank during processing, is not maintained at a minimum of 150° F., then two or more surge tanks shall be installed with cross connections to permit flushing and cleaning during operation. Covers easily removable for cleaning shall be provided and used at all times.

58.219 High pressure pumps and lines.--High pressure lines may be cleaned-in-place and shall be of such construction that dead ends, valves and the high pressure pumps can be disassembled for hand cleaning. The high pressure pump should meet the 3-A Sanitary Standard Covering Homogenizers and High Pressure Pumps of the Plunger Type.

58.220 Spray dryers.--Spray dryers shall be of a continuous discharge type and all product contact surfaces shall be of stainless steel or other equally corrosion resistant material. All joints and seams in the product contact surfaces shall be welded and ground smooth. All dryers shall be constructed so as to facilitate ease in cleaning and inspection. Sight glasses or ports of sufficient size shall be located at strategic positions. Dryers shall be equipped with suitable air intake filters and with air intake and exhaust recording thermometers. The filter system

shall consist of filtering media or devices that will effectively, and in accordance with good commercial practices, prevent the entrance of foreign substances into the drying chamber. The filtering system shall be cleaned or component parts replaced as often as necessary to maintain a clean and adequate air supply. In gas fired dryers, precautions should be taken to assure complete combustion. Air shall be drawn into the dryer from sources free from objectionable odors and smoke, dust or dirt.

58.221 Collectors and conveyors.--Collectors shall be made of stainless steel or equally noncorrosive material and should be constructed to facilitate cleaning and inspection. Filter sack collectors, if used, shall be in good condition and the system shall be of such construction that all parts are accessible for cleaning and inspection. Conveyors shall be of stainless steel or equally corrosion resistant material and should be constructed to facilitate thorough cleaning and inspection.

58.222 Dry dairy product cooling equipment.--Cooling equipment shall be provided with sufficient capacity to cool the product to 110° F. or lower, immediately after removal from dryer and prior to packaging. If bulk bins are used, the product should be cooled to approximately 90° F. but shall be not more than 110° F. A suitable dry air supply with effective filtering shall be provided where air cooling and conveying is used.

58.223 Special treatment equipment.--Any special equipment used to treat dry milk products shall be of sanitary construction and all parts shall be accessible for cleaning and inspection.

58.224 Sifters.--All newly installed sifters used for dry milk and dry milk products shall meet the 3-A Sanitary Standards for Sifters for Dry Milk and Dry Milk Products. All other sifters shall be constructed of stainless steel or other equally noncorrosive material and shall be of

sanitary construction and accessible for cleaning and inspection. The mesh size of sifter screen used for various dry dairy products shall be those recommended in the appendix of the 3-A Standard for sifters.

58.225 Clothing and shoe covers.--Clean clothing and shoe covers shall be provided exclusively for the purpose of cleaning the interior of the drier when it is necessary to enter the drier to perform the cleaning operation.

58.226 Portable and stationary bulk bins.--Bulk bins shall be constructed of stainless steel, aluminum or other equally corrosion resistant materials, free from cracks, seams and must have an interior surface that is relatively smooth and easily cleanable. All product contact surfaces shall be easily accessible for cleaning. The capacity of each portable bulk bin shall be limited as directed by the Administrator.

58.227 Sampling device.--If automatic sampling devices are used, they shall be constructed in such a manner as to prevent contamination of the product, and all parts must be readily accessible for cleaning. The type of sampler and the sampling procedure shall be as approved by the Administrator.

58.228 Dump hoppers, screens, mixers and conveyors.--The product contact surfaces of dump hoppers, screens, mixers and conveyors which are used in the process of transferring dry products from bulk containers to fillers for small packages or containers, shall be of stainless or equally corrosion resistant material and designed to prevent contamination. All parts should be accessible for cleaning. The dump hoppers shall be of such height above floor level as to prevent foreign material or spilled product from entering the hopper.

58.229 Filler and packaging equipment.--All filling and packaging equipment shall be of sanitary construction and all parts, including valves and filler heads accessible for cleaning.

58.230 Heavy duty vacuum cleaners.-- Each plant handling dry milk products shall be equipped with a heavy duty industrial vacuum cleaner. Regular scheduling shall be established for its use in vacuuming applicable areas.

#### QUALITY SPECIFICATIONS FOR RAW MATERIALS

58.231 General.--All raw materials received at the drying plant shall meet the following quality specifications.

58.232 Milk.--Raw milk shall meet the requirements as outlined in section 58.132 thru 58.133 of Subpart B and, unless processed within two hours after being received, it shall be cooled to and held at a temperature of 45° F. or lower until processed.

58.233 Skim milk.--The skim milk shall be separated from whole milk meeting the requirements as outlined in section 58.132 thru 58.138, and unless processed immediately, it shall be cooled to and maintained at a temperature of 45° F. or lower from the time of separating until the time of processing.

58.234 Buttermilk.--Buttermilk for drying shall be fresh, sweet and from the churning of sweet cream butter, with or without the addition of harmless lactic culture. No neutralizing agent or chemical preservative may be added. Fluid buttermilk, unless cultured, shall be held at 45° F. or lower until processed.

58.235 Whey. Cheese whey for drying shall be fresh and contain no neutralizing agent or chemical preservative. Whey shall be held at 45° F. or lower, or at temperatures of 150° F. or above until processed.

#### OPERATIONS AND OPERATING PROCEDURES

58.236 Pasteurization and heat treatment.--All milk, buttermilk and whey used in the manufacture of dry dairy products shall be pasteurized at the plant where dried, except that condensed whey and acidified buttermilk containing 40 percent or more solids may be transported to another plant for drying without repasteurization. Provided the condensed product is handled according to sanitary conditions approved by the Administrator.

(a) Pasteurization.--(1) All milk or skim milk to be used in the manufacture of nonfat dry milk shall be heated prior to condensing to at least the minimum pasteurization temperature of 161° F. for at least 15 seconds or its equivalent in bacterial destruction. Condensed skim made from pasteurized skim milk may be transported to a drying plant, provided that it shall be effectively repasteurized at the drying plant, prior to drying, at at least 166° F. for 15 seconds or its equivalent in bacterial destruction.

(2) All buttermilk or cream from which it is derived shall be pasteurized prior to condensing at a temperature of 185° F. for 15 seconds or its equivalent in bacterial destruction.

(3) All cheese whey or milk from which it is derived shall be pasteurized prior to condensing at a temperature of 161° F. for 15 seconds or its equivalent in bacterial destruction.

(b) High heat.--All skim milk to be used in the manufacture of non-fat dry milk intended for baking or other purposes where high heat treatment is desirable shall be heated to such a temperature as will produce a finished product meeting the requirements of U. S. High Heat as defined in the U. S. Standards for Grades of Nonfat Dry Milk (Spray Process).

58.237 Condensed surge supply.--Surge tanks or balance tanks if used between the evaporators and dryer shall be used to hold only the minimum amount of condensed product necessary for a uniform flow to the dryers. Such tanks holding product at temperatures below 150° F. shall be completely emptied and washed after each 4 hours of operation or less. Alternate tanks shall be provided to permit continuous operation during washing of tanks.

58.238 Condensed storage tanks.--Excess production of condensed product over that which the dryer will take continuously from the pans should be bypassed through a cooler into a storage tank to 50° F. or lower and held at this temperature until used.

Product cut-off points shall be made at least every 24 hours and the tank completely emptied, washed, and sanitized before re-use.

58.239 Drying.--Each dryer should be operated at not more than the manufacturer's rated capacity for the highest quality dry product consistent with the most efficient operation. This does not preclude the remodeling or redesigning of dryers after installation when properly engineered and designed. The dry products shall be removed from the drying chamber continuously during the drying process.

58.240 Cooling dry products.--Prior to packaging and immediately following removal from the drying chamber the dry product shall be cooled to a temperature not exceeding 110° F., however, if the product is to be held in a bulk bin the temperature should be reduced to approximately 90° F. but shall be not more than 110° F.

58.241 Packaging, repackaging and storage.-- (a) Containers.--Packages or containers used for the packaging of nonfat dry milk or other dry milk products shall be any clean, sound commercially accepted container or packaging material which will satisfactorily protect the contents through the regular channels of trade, without significant impairment of quality with respect to flavor, wholesomeness or moisture content under the normal conditions of handling. In no instance will containers which have previously been used for non-food items, or food items which would be deleterious to the dairy product be allowed to be used for the bulk handling of dairy products.

(b) Filling.--Empty containers shall be protected at all times from possible contamination and containers which are to be lined shall not be prepared more than one hour in advance of filling. Every precaution shall be taken during the filling operation to minimize product dust and spillage. When necessary a mechanical shaker shall be provided; the tapping or pounding of containers shall be prohibited. The containers shall be closed immediately after filling and the exteriors shall be vacuumed or brushed when necessary to render them practically free of product remnants before being transferred from the filling room to the palleting or dry storage areas.

(c) Repackaging.--The entire repackaging operation shall be conducted in a sanitary manner with all precautions taken to prevent contamination and to minimize dust. All exterior surfaces of individual containers shall be practically free of product before overwrapping or packing in shipping containers. The flow shall be kept free of dust accumulation, waste, cartons, liners, or other refuse. Conveyors, packaging and carton making equipment shall be vacuumed frequently during the operating day to prevent the accumulation of dust. No bottles or glass

materials of any kind shall be permitted in the repackaging or hopper room. The inlet openings of all hoppers and bins shall be of minimum size, screened and placed well above the floor level. The room and all packaging equipment shall be cleaned as often as necessary to maintain a sanitary operation. Close attention shall be given to cleaning points of equipment where residues of the dry product may accumulate. A thorough clean-up including windows, doors, walls, light fixtures and ledges, shall be performed as frequently as is necessary to maintain a high standard of cleanliness and sanitation. All waste dry dairy products including dribble product at the fillers, shall be properly identified and disposed of as animal feed.

(d) Storage.--(1) Product.--The packaged dry milk product shall be stored or so arranged in aisles, rows, or sections and lots at least 18 inches from any wall and in such a manner as to be orderly, easily accessible for inspection or for cleaning of the room. All bags and small containers of product shall be placed on pallets elevated approximately 6 inches from the floor. The storage room shall be kept clean and dry and all openings protected against entrance of insects and rodents.

(2) Supplies.--All supplies shall be placed on dunnage or pallets and arranged in an orderly manner for accessibility and cleaning of the room. It is preferable that supplies be stored in an area separate from that used for storing the dry products. Supplies shall be kept enclosed in their original wrapping material until used. After removal of supplies from their original containers they shall be kept in an enclosed metal cabinet, bins or on shelving and if not enclosed shall be protected from powder, and dust or other contamination. The room shall be vacuumed as often as necessary and kept clean and orderly.

58.242 Product adulteration.--All necessary precautions shall be taken throughout the entire operation to prevent the adulteration of one product with another. The commingling of one type of liquid or dry product with another shall be considered as an adulteration of that product. This does not prohibit the normal standardization of like products in accordance with good commercial practices or the production of specific products for special uses, provided applicable labeling requirements are met.

58.243 Checking quality.-- All milk, milk products and dry milk products shall be subject to inspection and analysis by the dairy plant for quality and condition throughout each processing operation. Line samples shall be taken periodically as an aid to quality control in addition to the regular routine analysis made on the finished products.

58.244 Number of samples. As many samples shall be taken from each dryer production lot as is necessary to assure proper composition and quality control. A sufficient number of representative samples from the lot shall be taken to assure compliance with the stated net weight on the container.

58.245 Method of official sample analysis.--Samples shall be tested according to the "Methods of Laboratory Analysis for Dry Whole Milk, Nonfat Dry Milk, Dry Buttermilk and Dry Whey" as issued by the USDA Consumer and Marketing Service, Dairy Division, Inspection and Grading Branch Laboratory.

58.246 Cleaning of dryers, conveyors, sifters and storage bins.-- This equipment shall be cleaned as often as is necessary to maintain such equipment in a clean and sanitary condition. The kind of cleaning procedure either wet or dry and the frequency of cleaning shall be based upon observation of actual operating results and conditions.

58.247 Insect and rodent control program.--In addition to any commercial pest control service, if one is utilized, a specially designated employee shall be made responsible for the performance of a regularly scheduled insect and rodent control program as outlined in AMS Bulletin 302 or subsequent revisions thereof.

QUALITY REQUIREMENTS FOR FINISHED PRODUCTS BEARING THE USDA GRADE  
LABEL OR QUALITY APPROVED INSPECTION SHIELD

58.248 Nonfat dry milk.--Nonfat dry milk in commercial bulk containers bearing an official grade label shall meet the requirements of U. S. Extra Grade or U. S. Standard Grade.

Instant and regular nonfat dry milk in consumer size packages which bears an official grade label shall meet the requirements of U. S. Extra Grade. In addition, the nonfat dry milk shall meet the following specifications when sampled and tested in accordance with sections 58.244 and 58.245. All nonfat dry milk in consumer size packages shall have a direct microscopic count of not more than 75 million per gram.

58.249 Instant nonfat dry milk.--Instant nonfat dry milk shall meet the applicable standard for U. S. Extra Grade.

58.250 Dry whole milk.-- Dry whole milk in commercial bulk containers which bears an official grade label shall meet the requirements for the U. S. Standards for Grades of Dry Whole Milk. Quality requirements for dry whole milk in consumer packages shall be for U. S Premium Grade or U. S. Extra Grade and in addition shall have a direct microscopic count of not more than 75 million per gram.

58.251 Dry buttermilk.--The quality requirements for all dry buttermilk shall be in accordance with U. S. Standards for Grades of Dry Buttermilk. Dry cultured buttermilk shall meet the same requirements as listed above except

that allowances shall be made for increased acidity due to the culture process.

58.252 Dry Whey.--The quality requirements for all dry whey shall be in accordance with U. S. Standards for Dry Whey.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING, PROCESSING AND PACKAGING BUTTER AND RELATED PRODUCTS

DEFINITIONS

58.305 Meaning of words.--For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa, as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning.

(a) Butter.--The food product usually known as butter, and which is made exclusively from milk or cream, or both, with or without common salt, with or without harmless lactic culture or lactic acid, with or without additional coloring matter, and with water for composition control and containing not less than 80 percent by weight of milkfat, all tolerances having been allowed for.

(b) Butteroil.--The product resulting from the removal of practically all of the moisture and solids-not-fat from butter. It contains not less than 99.6 percent fat, and not more than 0.3 percent moisture; and not more than 0.1 percent other butter constituents, of which the salt shall be not more than 0.05 percent.

(c) Anhydrous milkfat.--The product resulting from the removal of practically all of the moisture and the solds-not-fat from cream. It contains not less than 99.8 percent fat, and not more than 0.15 percent moisture.

(d) Frozen cream.--Sweet cream which has been pasteurized and frozen. It contains approximately 40 percent milkfat.

(e) Plastic cream.--Sweet cream which has been pasteurized and contains approximately 80 percent milkfat.

(f) Whipped butter.-- Butter which has been stirred or whipped to incorporate air or inert gas, until its volume has been increased up to a range of from 50 to 100 percent. It contains not less than 80.0 percent fat by weight.

#### ROOMS AND COMPARTMENTS

58.311 Coolers and freezers.--The coolers and freezers shall be equipped with facilities for maintaining proper temperature and humidity conditions, consistent with good commercial practices for the applicable product, to protect the quality and condition of the products during storage or during tempering prior to further processing. Coolers and freezers shall be kept clean, orderly, free from insects, rodents, and mold, and maintained in good repair. They shall be adequately lighted and proper circulation of air shall be maintained at all times. The floors, walls, and ceilings shall be of such construction as to permit thorough cleaning.

58.312 Churn rooms.--Churn rooms in addition to proper construction and sanitation shall be so equipped that the air is kept free from objectionable odors and vapors and extreme temperatures by means of adequate ventilation and exhaust systems or air conditioning and heating facilities.

58.313 Print and bulk packaging rooms.--Rooms used for packaging print or bulk butter and related products should, in addition to proper construction and sanitation, provide an atmosphere relatively free from mold (no more than 10 mold colonies per cubic foot of air), dust, or other air-borne contamination and maintain a reasonable room temperature.

## EQUIPMENT AND UTENSILS

58.314 General construction repair and installation.--All equipment and utensils necessary to the manufacture of butter and related products shall meet the same general requirements as outlines in section 58.128 of this subpart. In addition for certain other equipment, the following requirements shall be met.

58.315 Continuous churn.--All product contact surfaces shall be of noncorrosive material. All non-metallic product contact surfaces shall comply with 3-A Standards for Plastic, Rubber and Rubber-Like Materials. All product contact surfaces shall be readily accessible for cleaning and inspection.

58.316 Conventional churning.--Churns should be constructed of aluminum, stainless steel or equally corrosion resistant metal, free from cracks, and in good repair. All gasket material shall be fat resistant, non-toxic and reasonably durable. Seals around the doors shall be tight.

58.317 Bulk butter trucks, boats and packers.--Bulk butter trucks, boats and packers shall be constructed of aluminum, stainless steel, or equally corrosion resistant metal free from cracks, seams and must have a surface that is relatively smooth and easily cleanable.

58.318 Butter, frozen or plastic cream melting machines.--Shavers, shredders or melting machines used for rapid melting of butter, frozen or plastic cream shall be of stainless steel or equally corrosion resistant metal, sanitary construction, and readily cleanable.

58.319 Printing equipment.--All printing equipment shall be designed to be readily demountable for cleaning of product contact surfaces. All product contact surfaces shall be aluminum, stainless steel or equally corrosion resistant metal, or plastic, rubber and rubber like material which meet 3-A standards, except that conveyors may be constructed of material which can be properly cleaned and maintained in a satisfactory manner.

58.320 Brine tanks.--Brine tanks used for the treating of parchment liners shall be constructed of non-corrosive material and have an adequate and safe means of heating the salt solution for the treatment of the liners. The tank shall also be provided with a satisfactory drainage outlet.

58.321 Starter vats.--Bulk starter vats shall be of stainless steel or equally corrosion resistant metal and constructed according to applicable 3-A Sanitary Standards. The vats shall be in good repair, equipped with tight fitting lids and have effective temperature controls.

#### QUALITY SPECIFICATIONS FOR RAW MATERIAL

58.322 Cream.--Cream separated at an approved plant and used for the manufacture of butter shall have been derived from raw material meeting the requirements as listed under section 58.132 thru 58.138 of this subpart.

The inspection of farm-separated cream or whey cream to be used for manufacturing or processing into dairy products under this part shall be based on organoleptic examination and quality control tests to determine suitability of cream at the time of delivery thereof at the receiving plant or substation.

(a) Organoleptic examination. Cream received at an approved receiving plant, or substation shall be identified as to the producer, seller,

or shipper from whom received. Each can of cream in each shipment shall be examined for physical characteristics, off-flavors and off-odors, including those associated with developed acidity. The condition of the cream shall be wholesome and characteristic of normal cream. The organoleptic examination and segregation of the cream which is used in the manufacturing or processing into butter, shall be consistent with the applicable flavor classification of butter set forth in the U. S. Standards for Grades of Butter. Any cream having pronounced or offensive off-flavor or off-odors, or which is in an abnormal condition (including, but not being limited to surface mold, foamy, yeasty, fruity, or containing extraneous matter), or which is otherwise unwholesome, shall be rejected to the producer, seller, or shipper and shall not be used in the processing or manufacturing of dairy products.

(b) Sediment content classification. (1) For the purpose of quality control and establishing a rejection level of cream to the producer, seller, or shipper, the following classifications of cream for sediment shall be applicable using USDA Sediment Chart (7 CFR 58.2726) as the basis for classification:

Sediment (off-the-bottom method):

No. 1 - USDA Sediment Standard (not to exceed) 0.50 mg.

No. 2 - USDA Sediment Standard (not to exceed) 1.00 mg.

No. 3 - USDA Sediment Standard (not to exceed) 2.50 mg.

Sediment (mixed-can method):

No. 1 - USDA Sediment Standard (not to exceed) 0.20 mg.

No. 2 - USDA Sediment Standard (not to exceed) 0.30 mg.

No. 3 - USDA Sediment Standard (not to exceed) 1.00 mg.

(2) At least twice each month one can of cream from each producer, seller, or shipper of farm separated cream shall be selected at random and tested by using the "off-the-bottom" method or the "mixed-can" method in accordance with acceptable and approved procedures.

(3) As a supplement to the regular sediment testing procedure it is recommended that whole-can filtering facilities be utilized for each can of each shipment of cream from the producer for coarse sediment or extraneous matter and rejections be made in accordance with State or Federal Food and Drug Administration practices.

(c) Acceptable cream.--Cream acceptable pursuant to the requirements of paragraph (a) of this section for organoleptic examination and complying with No. 1 or No. 2 for sediment content may be used in the processing or manufacturing of dairy products.

(d) Probational cream. Cream acceptable pursuant to the requirements of paragraph (a) of this section for organoleptic examination but classified No. 3 for sediment content may be accepted for processing in an approved plant for three successive deliveries. Thereafter each successive delivery shall be tested for sediment content prior to acceptance. If the sediment content is in excess of No. 2 such cream shall be rejected to the producer, seller, or shipper, and successive deliveries shall continue to be rejected until the sediment content is No. 2, or better. As soon as any shipment of cream is classified as probationary a representative of the plant, receiving plant, or substation should contact the producer, seller, or shipper involved in the production of probational cream and if necessary arrange to inspect the equipment, utensils, and facilities at the farm, receiving plant or substation and to offer constructive assistance for improvement in the quality of the cream.

(e) Rejected cream. (1) The cream from a producer, seller, or shipper who has failed to improve the quality of his cream during the probationary period so as to meet the requirements of No. 2, or better, for sediment shall be rejected cream. Any further acceptance of cream from such a producer, seller, or shipper shall be on the basis of testing each shipment for sediment content, prior to acceptance to determine if the cream is No. 2, or better. If all cans of cream of the subsequent shipment meet No. 2, or better, such cream shall be classified as probational cream. When three successive shipments indicate cream of No. 2, or better, the cream may again be accepted, subject to regular periodic testing and quality control measures.

(2) If the initial new shipment fails to meet the requirements of No. 2 cream, or better, the plant shall not accept such cream until a representative of the plant again contacts the producer, seller, or shipper for the purpose of offering constructive assistance in correcting the unsatisfactory condition.

(f) Field service. A representative of the plant should arrange to contact promptly each producer, seller, or shipper involved in the production of probational or reject cream for the purpose of offering constructive assistance for the improvement in the quality of the cream. If necessary, he should arrange to inspect the equipment, utensils, and facilities at the farm, receiving plant, or substation. A representative of the plant should visit each producer, seller, or shipper as often as is practicable to assist in and encourage the production of high quality cream.

(g) Records. Accurate plant records listing the results of quality tests made on raw cream shall be maintained on cream from each producer, seller, or shipper. Each producer, seller, or shipper, shipping probational

or rejected cream, shall be informed immediately of the results of such quality tests. Producers, sellers, or shippers, shipping No. 1 and No. 2 cream should receive such information at the time of regular remittances. Such records shall be available for examination by the inspector and kept on file for at least one year.

(h) Alternate quality program. When a processor has in operation an acceptable quality program, at the producer level, which is approved by the Administrator as being effective in obtaining results comparable to or higher than the quality program as outlined above for cream, then such a program may be accepted in lieu of the program herein prescribed.

58.323 Whipped butter.-- Whipped butter to be eligible for official certification with a U. S. Grade shield shall be graded prior to whipping and shall have originated from an approved plant. If made from cream in a continuous churning and whipping process, the quality of the cream used shall meet the requirements of cream for butter of comparable U. S. Grade.

58.324 Butteroil.-- Made from butter.-- To produce butteroil eligible for official certification, the butter used shall conform to the flavor requirements of U. S. Grade AA, U. S. Grade A, or U. S. Grade B, and shall have been manufactured in an approved plant.

58.325 Anhydrous milkfat.--Made by a continuous separation process directly from milk or cream. To produce anhydrous milkfat eligible for official certification, the cream used shall be comparable to the flavor quality specified above for U. S. Grade AA or U. S. Grade A butter, or for U. S. Grade B butter as follows: The flavor of the cream shall be

fairly pleasing but may possess the following flavors to a slight degree: musty, utensil, and weed, and to a definite degree: acid, bitter, smothered and old cream; and to a pronounced degree feed flavors. Appearance should be fairly smooth and uniform in consistency. The cream shall be pasteurized in accordance with the procedure for cream for butter making.

58.326 Plastic cream.--To produce plastic cream eligible for official certification, the quality of the cream used shall meet the requirements of cream acceptable for the manufacture of U. S. Grade AA or U. S. Grade A butter.

58.327 Frozen cream.--To produce frozen cream eligible for official certification, the quality of the cream used shall meet the requirements of cream acceptable for the manufacture of U. S. Grade AA or U. S. Grade A butter.

58.528 Salt.--The salt shall be free-flowing, white refined sodium chloride of food grade quality free from extraneous material and prepared in accordance with good commercial practice. Iodized salt shall not be used.

58.329 Color.--Coloring, when used shall be Annatto or any color which is approved by the U. S. Food and Drug Administration.

58.330 Butter starter cultures.-- Harmless bacterial cultures used in the development of flavor components in butter and related products shall have a pleasing and desirable flavor and odor and shall have the ability to transmit these qualities to the finished product.

58.331 Starter distillate.--The refined flavor components used to flavor butter and related products. It shall be of food grade quality, free of extraneous material and prepared in accordance with good commercial practice.

#### OPERATIONS AND OPERATING PROCEDURES

58.332 Segregation of raw material.--The milk and cream received at the dairy plant shall meet the quality specifications as indicated under section 58.322. The milk and cream should be segregated by quality and processed separately in such a manner that the finished product will fully meet the requirements of a particular U. S. Grade or other specification, whichever is applicable.

58.334 Pasteurization.--The milk or cream shall be pasteurized at the plant where the milk or cream is processed into the finished product.

(a) Cream for butter making.--The cream for butter making shall be pasteurized at a temperature of not less than 165° F. and held continuously in a vat at such temperature for not less than 30 minutes; or pasteurized by HTST method at a minimum temperature of not less than 185° F. for not less than 15 seconds; or it shall be pasteurized by any other equivalent temperature and holding time which will assure adequate pasteurization. Additional heat treatment above the minimum pasteurization requirement is advisable to insure improved keeping-quality characteristics.

Adequate pasteurization control shall be used and the diversion valve shall be set to divert at no less than 185° F. with a 15 second holding time or its equivalent in time and temperature to assure pasteurization. If the vat or holding method of pasteurization is used, vat covers shall be closed prior to holding period to assure temperature of air space reaching the minimum temperature before holding time starts. Covers shall also be kept closed during the holding and cooling period.

(b) Cream for plastic or frozen cream.--The pasteurization of cream for plastic or frozen cream shall be accomplished in the same manner as in (a) above, except, that the temperature for the vat method shall be not less than 170° F. for not less than 30 minutes, or not less than 190° F. for not less than 15 seconds or by any other temperature and holding time which will assure adequate pasteurization and comparable keeping-quality characteristics.

58.335 Quality control tests.--All milk, cream and related products are subject to inspection for quality and condition throughout each processing operation. Quality control tests shall be made on flow samples as often as necessary to check the effectiveness of processing and manufacturing and as an aid in correcting deficiencies in processing and manufacturing. Routine analysis shall be made on raw materials and finished products to assure adequate composition control.

58.336 Frequency of sampling for quality control.--Butter and related products.-- (a) Microbiological.--Samples shall be taken from churnings or batches and should be taken as often as is necessary to insure microbiological control.

(b) Composition.--Sampling and testing for product composition shall be made on churns or batches as often as is necessary to insure adequate composition control. For in-plant control, the Kohman or modified Kohman test may be used.

(c) Copper and iron.--At least once each year a sample of product from each processing line should be spot checked for copper and iron content to establish the presence or absence of contaminating metal product contact surfaces.

(d) Other analysis.-- Other chemical analysis or physical measurements shall be performed as often as is necessary to insure meeting grade standards and contract specifications.

(e) Weight or volume control.--Representative samples of the packaged product shall be checked during the packaging operation to assure compliance with the stated net weight or volume on the container.

(f) Keeping quality and stability.--One sample from each churning or batch of butter (regular or whipped) shall be subjected to a seven day keeping quality test at a temperature of 70° F. Optionally 98° F. for 48 hours may be used, however, in case of a dispute, the results of the seven days at 70° F. will prevail.

58.337 Official test methods.-- (a) Chemical.--Chemical analyses, except where otherwise prescribed herein, shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the Association of Official Agricultural Chemists, published by the Association of Official Agricultural Chemists. The Official and Tentative Methods of the American Oil Chemists Society or any other methods giving equivalent results.

(b) Microbiological. Microbiological determinations shall be made in accordance with the methods described or suggested in the latest

edition of Standard Methods for the Examination of Dairy Products,

published by the American Public Health Association.

58.338 Composition and wholesomeness.-- All ingredients used in the manufacture of butter and related products shall be subject to inspection and shall be wholesome and practically free from impurities. Chlorinating facilities shall be provided for butter wash water if needed and all other necessary precautions shall be taken to prevent contamination of products. All finished products shall comply with the requirements of the Federal Food, Drug and Cosmetic Act, as to composition and wholesomeness.

58.339 Containers.--(a) Containers used for the packaging of butter and related products shall be commercially acceptable containers or packaging material that will satisfactorily protect the quality of the contents in regular channels of trade. Caps or covers which extend over the lip of the container shall be used on all cups or tubs containing two pounds or less, to protect the product from contamination during subsequent handling.

(b) Liners and wrappers.--Supplies of parchment liners, wrappers and other packaging material shall be protected against dust, mold and other possible contamination.

Prior to use, parchment liners for bulk butter packages shall be completely immersed in a boiling salt solution in a suitable container constructed of stainless steel or other equally non-corrosive material. The liners shall be maintained in the solution for not less than 30 minutes. The solution should consist of at least 15 pounds of salt for every 85 pounds of water and shall be strengthened or changed as frequently as necessary to keep the solution full strength and in good condition.

Other liners such as polyethylene shall be treated or handled in such a manner as to prevent contamination of the liner prior to filling.

(c) Filling bulk butter containers.--The lined butter containers shall be protected from possible contamination prior to filling. This may be accomplished by alternately inverting one container over the other or stacking the lined boxes on their sides in a rack, until ready for use. When packing butter into the bulk containers, care shall be taken to fill the corners leaving as few holes or openings as possible. The surface of the butter as well as the covering liner shall be smoothed evenly over the top surface before closing and sealing the container. Containers should be stacked only as high as the firmness of the product will support weight, so as not to crush or distort the container.

58.340 Printing and packaging.-- Printing and packaging of consumer size containers of butter shall be conducted under sanitary conditions. Separate rooms equipped with automatic filling and packaging equipment should be provided. The outside cartons should be removed from bulk butter in a room outside of the printing operation but the parchment removal and cutting of the butter may be done in the print room.

58.341 Repackaging.-- When officially graded or inspected bulk product is to be repackaged into consumer type packages for official grade labeling or other official identification, a supervisor of packaging shall be required and the plant, equipment, facilities and personnel shall meet the same specifications as outlined in this part, including such markings or identification as may be required.

58.342 General identification.--Commercial bulk shipping containers shall be legibly marked with the name of the product, net weight, name and address of manufacturer, processor or distributor or other assigned

plant identification (manufacturer's lot number, churn number, etc.) and any other identification that may be required. Packages of plastic or frozen cream shall be marked with the percent of milkfat.

58.343 Storage of finished product in coolers.--All products shall be kept under refrigeration at temperatures of 40° F. or lower after packaging and until ready for distribution or shipment. The products shall not be placed directly on floors or exposed to foreign odors or conditions such as drippage due to condensation which might cause package or product damage.

58.344 Storage of finished product in freezer.--(a) Sharp Freezers.-- Plastic cream or frozen cream intended for storage shall be placed in quick freezer rooms immediately after packaging, for rapid and complete freezing within 24 hours. The packages shall be piled or spaced in such a manner that air can freely circulate between and around the packages. The rooms shall be maintained at -10° F. or lower and shall be equipped to provide sufficient high velocity, air circulation for rapid freezing. After the products have been completely frozen, they may be transferred to a freezer storage room for continued storage.

(b) Freezer storage. --The room shall be maintained at a temperature of 0° F. or lower. Adequate air circulation is desirable.

Butter intended to be held more than 30 days shall be placed in a freezer room as soon as possible after packaging. If not frozen before being placed in the freezer, the packages shall be spaced in such a manner as to permit rapid freezing and repiled, if necessary, at a later time.

QUALITY REQUIREMENTS AND SPECIFICATIONS FOR FINISHED PRODUCTS  
BEARING THE USDA GRADE LABEL OR QUALITY APPROVED INSPECTION SHIELD

58.345 Butter.--The quality requirements for butter shall be in accordance with the U. S. Standards for Grades of Butter for U. S. Grade AA, U. S. Grade A, or U. S. Grade B, respectively.

In addition, the butter is subject to the following specifications when sampled and tested in accordance with sections 58.336 and 58.337.

Proteolytic count	-	not more than 100 per gram
Lipolytic count	-	not more than 100 per gram
Yeast and mold count	-	not more than 20 per gram
Coliform count	-	not more than 10 per gram
Copper content	-	not more than 0.3 ppm.
Iron content	-	not more than 1.0 ppm.

58.346 Whipped butter.--The flavor requirements as applicable for Whipped Butter shall be in accordance with the U. S. Standards for Grades of Butter, U. S. Grade AA, U. S. Grade A, or U. S. Grade B respectively.

In addition, the whipped butter is subject to the following specifications when sampled and tested in accordance with section 58.336 and 58.337.

Proteolytic count	-	not more than 100 per gram
Lipolytic count	-	not more than 100 per gram
Yeast and mold count	-	not more than 20 per gram
Coliform count	-	not more than 10 per gram
Copper content	-	not more than 0.3 ppm.
Iron content	-	not more than 1.0 ppm.
Overrun	-	not more than 100 percent

58.347 Butteroil or Anhydrous Milkfat.--The flavor shall be bland, free from rancid, oxidized or other objectionable flavors.

In addition, the finished products shall meet the following specifications when sampled and tested in accordance with sections 58.336 and 58.337.

<u>Butteroil</u>		<u>Anhydrous Milk Fat</u>
not less than 99.6 percent	Milkfat	not less than 99.8 percent
not more than .3 percent	Moisture	not more than 0.15 percent
not more than .1 percent	Other butter constituents including salt	—
not more than .05 percent	Salt	—
not more than 0.5 percent (Calculated as oleic acid)	Free fatty acids not more than 0.3 percent (Calculated as oleic acid)	
not more than 0.1 milli equivalents per kilogram of fat	Peroxide value	not more than 0.1 milli equivalents per kilogram of fat
not more than 0.10 ppm.	Copper content	not more than 0.10 ppm.

58.348 Plastic cream.--The flavor shall be sweet, pleasing and desirable but may possess the following flavors to a slight degree: aged, bitter, flat, smothered and storage; and cooked and feed flavors to a definite degree. It shall be free from rancid, oxidized or other objectionable flavors.

In addition, the finished product shall meet the following specifications when sampled and tested in accordance with sections 58.336 and 58.337.

Standard plate count	-	not more than 30,000 per gram
Coliform count	-	not more than 10 per gram
Yeast and mold	-	not more than 20 per gram
Copper content	-	not more than 0.3 ppm.
Iron content	-	not more than 1.0 ppm.

58.349 Frozen cream.--The flavor shall be sweet, pleasing and desirable, but may possess the following flavors to a slight degree: aged, bitter, flat, smothered, storage; and cooked and feed flavors to a definite degree. It shall be free from rancid, oxidized or other objectionable flavors.

In addition, the product shall meet the following specifications when sampled and tested in accordance with sections 58.336 and 58.337. Samples for analysis should be taken prior to freezing of the product.

Standard plate count	-	not more than 30,000 per ml.
Coliform count	-	not more than 10 per ml.
Yeast and mold	-	not more than 20 per ml.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING AND PACKAGING CHEDDAR CHEESE AND  
SIMILAR VARIETIES

DEFINITIONS

58.405. Meaning of words.--For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning:

(a) Cheddar cheese.--The cheese made by the Cheddar process or by any other procedure which produces a finished cheese having the same physical and chemical properties as the cheese produced by the Cheddar process and is made from cow's milk with or without the addition of coloring matter and with common salt, contains not more than 39 percent moisture, and in the water-free substance contains not less than 50 percent milk fat and conforms to the provisions of Section 19.500 "Definitions and Standards of Identity for Cheese and Cheese Products", U. S. Food and Drug Administration (21 CFR 19.500).

(b) Colby cheese.--The cheese made by the Colby process or by any other procedure that produces a finished cheese having the same physical and chemical properties as the cheese produced by the Colby process and is made from cow's milk with or without the addition of coloring matter and with common salt, containing not more than 40 percent moisture and its solids contain not less than 50 percent milk fat and conforms to the provisions of Sec. 19.510, "Definitions and Standards of Identity for Cheese and Cheese Products", U. S. Food and Drug Administration (21 CFR 19.510).

(c) Granular, stirred curd cheese.--The cheese made by the granular or stirred curd process or by any other procedure that produces a finished cheese having the same physical and chemical properties as the cheese produced by the granular or stirred curd process, and is made from cow's milk with or without the addition of coloring matter and with common salt, containing not more than 39 percent moisture, and its solids contain not less than 50 percent milkfat, and conforms to the provisions of Sec. 19.535, "Definitions and Standards of Identity for Cheese and Cheese Products", U. S. Food and Drug Administration (21 CFR 19.535).

(d) Washed curd cheese, soaked curd cheese.--The cheese made by the washed curd or soaked curd process or by any procedure that produces a finished cheese having the same physical and chemical properties as the cheese produced by the washed or soaked curd process and is made from cow's milk with or without the addition of coloring matter and with common salt, containing not more than 42 percent moisture, and its solids contain not less than 50 percent milkfat, and conforms to the provisions of Sec. 19.505, "Definitions and Standards of Identity for Cheese and Cheese Products", U. S. Food and Drug Administration (21 CFR 19.505).

(e) Whey cream.--Is the cream obtained from the separation of cheese whey.

#### ROOMS AND COMPARTMENTS

58.406 Starter room.--A separate starter room equipped with a tight fitting door should be provided for the propagation and handling of starter cultures. All necessary precaution shall be taken to prevent contamination of the room, equipment and the air therein. A filtered air supply should be provided so as to obtain outward movement of air from the room.

58.407 Make room.--The room in which the cheese is manufactured shall be of adequate size, and the vats adequately spaced to permit movement around the vats and presses for proper cleaning and satisfactory working conditions. Adequate ventilation shall be provided, preferably filtered air. Mold count should be no higher than 10 per cubic foot of air.

58.408 Drying room.--If cheese is to be paraffined, a drying room of adequate size shall be provided to accommodate the maximum production of cheese during the flush period. Adequate shelving and air circulation shall be provided for proper drying. Temperature and humidity control facilities should be provided which will promote the development of a sound, dry rind.

58.409 Paraffining room.--For rind cheese, a separate room or compartment should be provided for paraffining and boxing the cheese. The room shall be of adequate size and the temperature maintained near the temperature of the drying room to avoid sweating of the cheese prior to paraffining.

58.410 Rindless block wrapping area.--For rindless blocks a suitable space shall be provided for proper wrapping and boxing of the cheese. The area shall be free from dust, condensation, mold or other conditions which may contaminate the surface of the cheese or contribute to an unsatisfactory packaging of the cheese.

58.411 Coolers or curing rooms.--Coolers or curing rooms where cheese is held for curing or storage shall be clean and maintained at the proper uniform temperature and humidity to adequately protect the cheese, and minimize the growth of mold.<sup>16</sup> Proper circulation of air shall be maintained at all times. They shall be free from rodents, insects, and pests. The shelves shall be kept clean and dry.

58.412 Cutting and packaging rooms.--When small packages of cheese are cut and wrapped, separate rooms shall be provided for the cleaning and preparation of the bulk cheese and a separate room shall be provided for the cutting and wrapping operation. The rooms shall be well lighted, ventilated and provided with filtered air. Air movement shall be outward to minimize the entrance of unfiltered air into the cutting and packaging room.

#### EQUIPMENT AND UTENSILS

58.413 General construction repair and installation.--All equipment and utensils necessary to the manufacture of Cheddar cheese and related products shall meet the same general requirements as outlined in Section 58.128. In addition, for certain other equipment the following requirements shall be met.

58.414 Starter vats.--Bulk starter vats shall be of stainless steel or equally corrosion resistant metal and should be constructed according to the applicable 3-A Sanitary Standards. The vats shall be in good repair, equipped with tight fitting lids and have adequate temperature controls such as valves, indicating and/or recording thermometers.

58.415 Cheese vats.--The vats used for making cheddar cheese should be of metal construction with adequate jacket capacity for uniform heating. The inner liner shall be minimum 16 gauge stainless steel or other equally corrosion resistant metal, properly pitched from side to center and from rear to front for adequate drainage. The liner shall be smooth, free from excessive dents or creases and shall extend over the edge of the outer jacket. The outer jacket when metal shall be constructed of stainless steel or other metal which can be kept clean and sanitary. The junction of the liner and outer jackets shall be constructed so as to prevent milk or cheese from entering the inner jacket.

The vat shall be equipped with a suitable sanitary outlet valve.

Effective valves shall be provided and properly maintained to control the application of heat to the vat. Also vats should be equipped with removable cloth covers which can be regularly and suitably laundered, or with a single service paper cover.

58.416 Mechanical agitators.--The mechanical agitators shall be of sanitary construction. The carriage and track shall be so constructed as to prevent the dropping of dirt, or grease into the vat. Metal blades, forks, or stirrers shall be constructed of stainless steel and of material approved in the 3-A Sanitary Standards for Plastic and Rubber or Rubber-Like Materials and shall be free from rough or sharp edges which might scratch the equipment or remove metal particles.

58.417 Curd mill and miscellaneous equipment.--Knives, hand rakes, shovels, paddles, strainers, and miscellaneous equipment shall be stainless steel or of material approved in the 3-A Sanitary Standards for Plastic and Rubber-like Material. The product contact surfaces of the curd mill should be of stainless steel. All pieces of equipment shall be so constructed that they can be kept clean. The wires in the curd knives shall be stainless steel, kept tight and replaced when necessary.

58.418 Hoops and followers.--The hoops, forms, and followers shall be constructed of stainless steel or heavy tinned steel. If tinned, they shall be kept tinned and free from rust. All hoops, forms, and followers shall be kept in good repair. Drums or other special forms used to press and store cheese shall be clean and sanitary.

58.419 Press.--The cheese press should be constructed of stainless steel and all joints welded and all surfaces, seams and openings readily cleanable. The pressure device shall be the continuous type. Press

clothes shall be maintained in good repair and in a sanitary condition.

Single service press clothes shall be used only once.

58.420 Rindless cheese press.--The press used to heat seal the wrapper applied to rindless cheese shall have square interior corners, reasonably smooth interior surface and have controls that shall provide uniform pressure and heat equally to all surfaces.

58.421 Paraffin Tanks.--The metal tank should be adequate in size, have wood rather than metal racks to support the cheese, have heat controls and an indicating thermometer. The cheese wax shall be kept clean.

#### QUALITY SPECIFICATIONS FOR RAW MATERIAL

58.422 Milk.--The milk shall be fresh, sweet, pleasing and desirable in flavor and shall meet the requirements as outlined under section 58.132 thru 58.138. The milk may be adjusted by separating part of the fat from the milk or by adding one or more of the following dairy products: Cream, skim milk, concentrated skim milk, nonfat dry milk, water in a quantity sufficient to reconstitute any concentrated or dry milk used. Such dairy products shall have originated from raw milk meeting the same requirements as outlined under section 58.132 thru 58.138.

58.423 Hydrogen Peroxide.--The solution shall comply with the specification of the U. S. Pharmacopeia, except that it may exceed the concentration specified therein and it does not contain added preservative. Application and usage shall be as specified in the "Definitions and Standards of Identity for Cheese and Cheese Products" U. S. Food and Drug Administration (21 CFR 19.500).

58.424 Catalase.--The catalase preparation shall be a stable, buffered solution, neutral in pH, having a potency of not less than 100 Keil units per milliliter. The source of the catalase, its application and usage shall be as specified in the "Definitions and Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration (21 CFR 19.500)

58.425 Cheese starter cultures.--Harmless bacterial cultures used in the development of lactic acid and flavor components in cheese shall have a pleasing and desirable flavor and odor and shall have the ability to actively produce the desired results in the manufacturing process.

58.426 Calcium chloride.--Calcium chloride, when used, shall be of food grade quality, free from extraneous material.

58.427 Color.--Coloring, when used, shall be Annatto or any cheese or butter color which is approved by the U. S. Food and Drug Administration.

58.428 Rennet, Pepsin or other coagulating enzymes.--Enzyme extracts used for curd coagulation in the manufacture of cheese shall be of food grade quality.

58.429 Salt.--The salt shall be free-flowing, evaporated salt of food grade quality, free from extraneous material. Iodized salt shall not be used.

#### OPERATIONS AND OPERATING PROCEDURES

58.430 Cheese from pasteurized milk.--If the cheese is labeled as pasteurized, the milk shall be pasteurized by subjecting every particle of milk to a minimum temperature of 161° F. for not less than 15 seconds or by any other combination of temperature and time treatment approved by the Administrator.

HTST pasteurization units shall be equipped with the proper controls and equipment to assure pasteurization. If the milk is held more than 2 hours between the time of pasteurization and setting, it shall be cooled to 45° F. or lower until time of setting.

58.431 Cheese from unpasteurized milk.--If the cheese is labeled as "heat treated", "unpasteurized", "raw milk", or "for manufacturing", the milk may be raw or heated at temperatures below pasteurization. If the milk is held more than 2 hours between time of receipt or heat treatment and setting, it shall be cooled to 45° F. or lower until time of setting.

58.432 Time schedule.--A uniform schedule should be established and followed as closely as possible for the various steps of setting, cutting, cooking, draining the whey and milling the curd, to promote a uniform quality of cheese.

58.433 Laboratory and Quality Control Tests.--(a) Chemical analyses.

(1) Milkfat and Moisture. One sample shall be tested from each vat of the finished cheese to assure compliance with composition requirements.

(2) Phosphatase. If the cheese is labeled or required to be pasteurized representative samples of the production should be taken from milk in the vat or the finished cheese to spot check effectiveness of approved pasteurization procedure.

(3) Test method. Chemical analysis shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the Association of Official Agricultural Chemists, the latest edition of Standard Methods or by other methods giving equivalent results.

(b) Weight or Volume Control.--Representative samples of the finished product shall be checked during the packaging operation to assure compliance with the stated net weight on the container of consumer size packages.

58.435 Whey disposal.--(a) Adequate sanitary facilities shall be provided for the disposal of whey. If outside, necessary precautions shall be taken to minimize flies, insects and development of objectionable odors.

(b) Whey or whey products intended for human food shall at all times be handled in a sanitary manner in accordance with the procedures of this subpart as specified for handling milk and dairy products.

58.436 Curing.--After the cheese has been packaged and ready for curing, it shall be placed in a curing room, at the plant or elsewhere, to attain the desired body and flavor development. The temperature of the room and the time held shall be determined by the composition of the cheese and the amount of cure desired. Samples of cheese should be examined periodically to make certain that curing is progressing satisfactorily. Cheese made from unpasteurized milk shall be cured for the required time and temperature as specified for specific varieties in the "Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration.

58.437 Packaging and repackaging.--Packaging rindless cheese or cutting and repackaging all styles of bulk cheese shall be conducted under rigid sanitary conditions. The atmosphere of the packaging rooms, the equipment and the packaging material shall be practically free from mold and bacterial contamination.

When officially graded bulk cheese is to be repackaged into consumer type packages with official grade labels or other official identification, a supervisor of packaging shall be required. If the repackaging is performed in a plant other than the one in which the cheese is manufactured and the product is officially identified, the plant, equipment, facilities and personnel shall meet the same requirements as outlined in this part.

58.438 General identification.--Each bulk cheese shall be legibly marked with the name of the product, code or date of manufacture, vat number, officially designed code number or name and address of manufacturer. Each consumer sized container shall be plainly marked with the name and address of the manufacturer, packer, or distributor, net weight of the contents, name of product, and such other information as may be required.

QUALITY REQUIREMENTS AND SPECIFICATIONS FOR FINISHED PRODUCTS BEARING THE USDA GRADE LABEL, OR QUALITY APPROVED INSPECTION SHIELD

58.439 Cheddar cheese.--The quality requirements for Cheddar cheese shall be in accordance with the U. S. Standards for Grades of Cheddar cheese.

58.440 Colby cheese.--The quality requirements for Colby cheese shall be as follows:

(a) Flavor.--Mild to mellow, pleasing characteristic cheese flavor; may possess a very slight bitter or acid flavor and feed flavor to a slight degree. It shall not possess any undesirable flavors or odors.

(b) Body and texture.--A plug drawn from the cheese shall be fairly firm, appear fairly smooth, translucent, open and may have numerous small mechanical openings. May be slightly curdy or entirely broken down. The body shall not be pasty and the texture shall not show the presence of gas holes.

(c) Color.--The color shall be uniform, bright and attractive. It may be colored or uncolored but if colored, it should be a medium yellow-orange.

(d) Finish and appearance.-- (1) Bandaged and paraffin-dipped.-- Shall possess a sound, fairly firm rind with the bandage and paraffin coating adhering tightly but may possess very slight mold under bandage and paraffin and the following other characteristics to a slight degree: Soiled surface, surface mold, rough surface, irregular bandaging, lopsided and high edges.

(2) Rindless.--The wrapper or covering shall be practically smooth, properly sealed with adequate overlapping at the seams or by any other satisfactory type of closure. The wrapper or covering shall be neat and adequately and securely envelop the cheese. May be slightly wrinkled but shall be of such character as to fully protect the surface of the cheese and not detract from its initial quality. Fresh or current cheese shall be free from mold under the wrapper or covering. It may be slightly lopsided but shall not be huffed.

(3) Barrel or bulk.--The container shall be clean, free from rust and in good condition. The barrel liner wrapper shall completely envelop the cheese but need not be sealed. Fresh or current cheese shall be practically free from mold under the liner. Medium or cured cheese may possess slight mold under the liner.

58.441 Washed curd, soaked curd cheese.--The quality requirements for washed curd or soaked curd cheese shall be as follows:

(a) Flavor: Mild to mellow, pleasing, but may be lacking in characteristic Cheddar cheese flavor development. It may possess slight feed and acid flavor but shall not possess any undesirable flavors and odors.

(b) Body and texture.-- A plug drawn from the cheese shall be fairly firm, smooth, translucent but may be open. May be slightly curdy or completely broken down. The body shall not be pasty but may be slightly weak. The texture shall not show the presence of gas holes but may possess two sweet holes per plug.

(c) Color.-- The color shall be uniform, bright and attractive. It may be colored or uncolored but if colored it should be a medium yellow-orange.

(d) Finish and appearance: Same as for Colby cheese.

58.442 Granular, stirred curd cheese.--The quality requirements for granular or stirred curd cheese shall be as follows:

(a) Flavor.-- Mild to mellow, pleasing characteristic cheese flavor, but may be lacking in flavor if fresh or current. May possess a very slight bitter flavor or slight feed and acid flavor. It shall not possess any undesirable flavors or odors.

(b) Body and texture.--A plug drawn from the cheese shall be reasonably firm, smooth, reasonably compact and translucent but may be definitely open. May be slightly curdy or completely broken down. The body may be slightly mealy, short and weak. The texture shall not show the presence of gas holes but may possess two sweet holes per plug.

(c) Color.-- The color shall be uniform, bright and attractive. It may be colored or uncolored but if colored it should be a medium yellow-orange.

(d) Finish and appearance.-- Same as for Colby cheese.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING AND PACKAGING COTTAGE CHEESE

DEFINITIONS

58.505 Meaning of words.--For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa, as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning:

(a) Condensed skim.--Skim milk which has been condensed to approximately one-third the original volume in accordance with standard commercial practice.

(b) Cottage cheese.--(1) Dry cottage cheese.--The soft uncured cheese prepared from pasteurized skim milk, or a combination of skim milk, concentrated skim milk or nonfat dry milk, or reconstituted concentrated skim milk or reconstituted nonfat dry milk. Calcium chloride may be added in a quantity not to exceed 0.02 percent of the weight of the mixture. The finished cottage cheese shall contain not more than 80.0 percent of moisture and shall conform to the provisions of Section 19.525, "Definitions and Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration (21 CFR 19.525).

(2) Creamed cottage cheese.--The soft uncured cheese made by mixing dry cottage cheese with a creaming mixture so that the finished product shall contain not less than 4.0 percent milkfat by weight. The creamed cheese shall contain not more than 80.0 percent of moisture and shall conform to the provisions of Section 19.530, "Definitions and Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration (21 CFR 19.530).

- (c) Creamed cottage cheese with fruits, nuts, chives, or other vegetables.--Shall consist of creamed cottage cheese to which has been added fruits, nuts, chives or other vegetables. The finished cheese shall contain not more than 80.0 percent of moisture nor less than 4.0 percent milkfat by weight prior to the addition of such ingredients.
- (d) Cream.--The milkfat portion of milk which rises to the surface of milk on standing or is separated from it by centrifugal force and contains not less than 18.0 percent of milkfat.
- (e) Creaming mixture.--The creaming mixture consists of cream or a mixture of cream with milk or skim milk or both. To adjust the solids content, nonfat dry milk or concentrated skim milk may be added but not to exceed 3.0 percent by weight of the creaming mixture. It may or may not contain a culture of harmless lactic acid and flavor producing bacteria, food grade acid, salt, and stabilizers with or without carriers. The creaming mixture in its final form may or may not be homogenized and shall conform to the provisions of Section 19.530 (b), "Definitions and Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration (21 CFR 19.530).

#### ROOMS AND COMPARTMENTS

58.510 Rooms and compartments.--(a) Processing operations with open cheese vats should be separated from other rooms or areas. Excessive personnel traffic or other possible contaminating conditions should be avoided. Rooms, compartments, coolers, and dry storage space in which any raw material, packaging or ingredient supplies or finished products are handled, processed, packaged or stored shall be designed and constructed to assure clean and orderly operations.

(b) Ventilation.--Processing and packaging rooms or compartments

shall be ventilated to maintain sanitary conditions, preclude the growth of mold and air borne bacterial contaminants, prevent undue condensation of water vapor and minimize or eliminate objectionable odors. To minimize air borne contamination in processing and packaging rooms it is preferable to filter all incoming air. The incoming air shall exert an outward pressure so that the movement of air will be outward and prevent the movement of unfiltered air inward.

(c) Starter room.--A separate starter room equipped with a tight fitting door should be provided for the propagation and handling of starter cultures. All necessary precautions shall be taken to prevent contamination of the room, equipment and the air therein. A filtered air supply shall be provided so as to obtain an outward movement of air. The outward movement of air from the room minimizes contamination from unfiltered air entering the starter room when the door to the room is opened.

(d) Coolers.--Coolers shall be equipped with facilities for maintaining proper temperature and humidity conditions, consistent with good commercial practices for the applicable product, to protect the quality and condition of the products. Coolers shall be kept clean orderly, free from insects, rodents, and mold, and maintained in good repair. They shall be adequately lighted and proper circulation of air shall be maintained at all times. The floors, walls, and ceilings shall be of such construction as to permit thorough cleaning.

## EQUIPMENT AND UTENSILS

58.511 General construction repair and installation.--The equipment and utensils used for the manufacture and handling of cottage cheese shall be as specified in Section 58.128 of Subpart B. In addition for certain other equipment the following requirements shall be met.

58.512 Cheese vats.--The vats used for making the cottage cheese shall be of stainless steel construction with adequate jacket capacity for uniform heating and cooling. The inner liner shall be minimum 16 guage stainless steel, or equally corrosion resistant metal properly pitched from side to center and from rear to front for adequate drainage. The liner shall be smooth free from excessive dents or creases and shall extend over the edge of the outer jacket. The outer jacket shall be constructed of stainless steel or other metal which can be kept clean and sanitary. The junction of the liner and outer jacket shall be constructed as to prevent milk or cheese from entering the inner jacket.

Vats shall be equipped with valves to control the heating and cooling medium and a suitable sanitary outlet valve. Also the vats should be equipped with removable stainless steel or other suitable metal covers, cloth covers which can be regularly and suitably laundered, or with single service paper covers. Vats used for creaming curd should be equipped with a refrigerated cooling medium. A circulating pump for the heating and cooling medium is recommended.

58.513 Agitators.--Mechanical agitators should be installed on all cheese vats for stirring the milk or cheese. The carriage shall be completely enclosed or provided with a trough or drip pan to prevent condensation, oil or dirt from dropping into the vat.

58.514 Container fillers.--Should conform to the 3-A Sanitary Standards for Equipment for Packaging Frozen Desserts and Cottage Cheese.

58.515 Mixers.--Only mixers shall be used which will mix the cheese carefully and keep shattering of the curd particles to a minimum. They shall be constructed in such a manner as to be readily cleanable. If shafts extend through the wall of the tank below the level of product, they shall be equipped with proper seals which are readily removable for cleaning and sanitizing. The mixer shall be enclosed or equipped with tight fitting covers.

58.516 Starter vats.--Bulk starter vats shall be made of stainless steel or equally corrosion resistant metal and should be constructed according to applicable 3-A Sanitary Standards. The vats shall be in good repair, equipped with tight fitting lids and accurate temperature controls such as valves, indicating and/or recording thermometers.

#### QUALITY SPECIFICATIONS FOR RAW MATERIAL

58.517 General.--Raw materials used for manufacturing cottage cheese shall meet the following quality specifications.

58.518 Milk.-- The selection of raw milk for cottage cheese shall be in accordance with sections 58.132 thru 58.138 of this subpart.

58.519 Dairy products.-- (a) Raw skim milk.--All raw skim milk obtained from a secondary source shall be separated from milk meeting the same quality requirements for milk as outlined in section 58.518 above. Skim milk after being pasteurized and separated shall be cooled to 45° F. or lower unless the skim milk is to be set for cheese within two hours after pasteurizing. The skim milk should not be more than 24 hours old from the time the milk was received at the plant and the skim milk is set for cheese.

(b) Nonfat dry milk. -- Nonfat dry milk, when used in cottage cheese bearing official identification, shall meet the requirements for U. S. Extra Grade (Spray Process), at time of use, and shall be of U. S. Low Heat Classification (not less than 6.0 mg. undenatured whey protein nitrogen per gram of nonfat dry milk). In addition, the nonfat dry milk shall have a direct microscopic clump count not exceeding 75 million per gram. The age of the nonfat dry milk shall be covered by a USDA grading certificate, evidencing compliance with quality requirements, dated not more than 6 months prior to use of the dry milk. In the interim between manufacture and use, the nonfat dry milk shall be stored in a clean, dry, vermin-free space. In any case, if the nonfat dry milk is more than 120 days old, at time of use, it shall be examined for flavor to make certain that it meets that requirement for U. S. Extra Grade.

(c) Condensed skim milk. -- Condensed skim milk, if used, shall be prepared from raw milk or skim milk that meets the same quality requirements outlined above for raw milk or skim milk. The concentrated skim milk should meet the requirements for U. S. Low Heat Classification for Nonfat Dry Milk (Spray Process) as indicated in the U. S. Grade Standards for Nonfat Dry Milk. It shall be cooled promptly after drawing from the vacuum pan or evaporator and shall have been pasteurized before concentrating or during the manufacture. The standard plate count of the concentrated milk shall not exceed 30,000 per ml. at time of use.

(d) Cream.--Any cream used for preparing the dressing for creamed cottage cheese shall be separated from milk meeting at least the same quality requirements as the skim milk used for making the curd. The flavor of the cream shall be fresh and sweet. Cream obtained from a secondary source shall meet the same requirements. The creaming mixture prepared from this cream, after pasteurization, shall have a standard plate count of no more than 30,000 per ml.

58.520 Non dairy ingredients.-- (a) Calcium chloride.--Calcium chloride, when used, shall be of food grade quality and free from extraneous material.

(b) Salt.--Salt shall be white refined sodium chloride of food grade quality and free from extraneous material.

(c) Other ingredients.--Other ingredients such as fruits, nuts, chives or other vegetables used or blended with cottage cheese shall be reasonably free of bacteria so as not to appreciably increase the bacterial count of the finished product. The various ingredients in kind shall be consistent in size and color so as to produce the desired appearance and appeal of the finished product. The flavor of the ingredients used shall be natural and represent the intended flavor and intensity desired in the finished product. Such ingredients shall be clean, wholesome, of uniformly good quality, free from mold, rancid or decomposed particle. Vegetables used in cottage cheese may first be soaked for 15 to 20 minutes in a cold 25 to 50 ppm chlorine solution to appreciably reduce the bacterial population. After soaking, the vegetables shall be drained and used soon thereafter.

#### OPERATIONS AND OPERATING PROCEDURES

58.521 Pasteurization and product flow.--(a) The skim milk used for the manufacture of cottage cheese, shall be pasteurized not more than 24 hours prior to the time of setting by heating every particle of skim milk to a temperature of 161° F. for not less than 15 seconds or by any other combination of temperature and time giving equivalent results. All skim milk must be cooled promptly to setting temperature. If held more than two hours between pasteurization and time of setting, the skim milk shall be cooled and held at 45° F. or colder until set.

(b) Cream or cheese dressing shall be pasteurized at not less than 150° F. for not less than 30 minutes or at not less than 166° F. for not less than 15 seconds or by any other combination of temperature and time treatment giving equivalent results. Cream and cheese dressing shall be cooled promptly to 40° F. or lower after pasteurization to aid in further cooling of cottage cheese curd for improved keeping quality.

(c) Reconstituted nonfat dry milk for cottage cheese manufacture need not be re-pasteurized provided it is reconstituted within two hours prior to the time of setting. Skim milk separated from pasteurized whole milk need not be re-pasteurized provided it is separated in equipment from which all traces of raw milk from previous operations has been removed by proper cleaning and sanitizing.

58.522 Reconstituting nonfat dry milk.--Nonfat dry milk shall be reconstituted in a sanitary manner, preferably by the use of a centrifugal pump and funnel arrangement. It shall be reconstituted within two hours of the time of setting, using water which is free from viable pathogenic or otherwise harmful microorganisms as well as microorganisms which may cause spoilage of cottage cheese.

58.523 Manufacture of cottage cheese.--(a) Setting.--The pasteurized skim milk shall be inoculated with a sufficient quantity of a desirable starter, thoroughly stirred into the milk to avoid lumps that may float to the surface or cause an irregular set. The amount of starter and temperature of setting shall be such that the desired acidity and firmness of curd will be attained in the time desired. Rennet or calcium chloride may or may not be used. The solids of the skim milk may also be increased by the addition of nonfat dry milk or condensed skim milk.

(b) Cutting and cooking.--When the proper acidity has been reached, the curd shall be cut uniformly, and carefully handled during cooking to avoid unnecessary shattering and to produce a uniform curd of the proper texture, free from chunks or matted pieces of curd.

58.524 Washing and cooling.--After the curd has been properly cooked, the whey shall be drained promptly and the curd washed sufficiently in cold wash water (practically free of bacterial contamination due to natural purity or chemical treatment) to remove the excess acid and properly chill the curd to 45° F. or lower. If necessary for pH control the wash water may be adjusted by the addition of a food acid approved by the U. S. Food and Drug Administration. The curd shall be adequately drained prior to storing or dressing.

58.525 Dressing the curd.--After the curd has been properly chilled to 45° F. or lower and drained, it may be dressed with the creaming mixture immediately or placed in storage vats, cans, or other suitable containers in a cooler at 40° F. or lower, for dressing at a later date. Dressing the curd with the creaming mixture as soon as possible after chilling and draining is preferred. The dressing for the curd shall be of such milkfat content and consistency as to produce a satisfactory finished product of legal composition. The creamed cottage cheese shall be cooled to 45° F. or lower within two hours after dressing, and shall be stored at this temperature until delivered.

58.526 Laboratory and quality control tests.-- (a) Quality control tests shall be made on flow samples as often as necessary to check the effectiveness of processing and manufacturing as an aid in correcting

deficiencies. Routine analyses shall be made on raw materials and finished products to assure adequate composition control. Keeping quality tests shall be made on each vat of finished cottage cheese to determine shelf-life and stability of the finished product.

(b) Frequency of sampling.-- (1) Microbiological.--Samples of raw milk for testing shall be taken as prescribed in section 53.135. One sample shall be taken for each vat of finished cottage cheese and from each lot, tank or batch of product used as ingredient. For keeping quality tests one or more samples shall be taken from each vat of finished cottage cheese

(2) Chemical. -- (i) Milkfat and moisture.--One sample shall be taken from each vat of creamed cottage cheese; dry cottage cheese shall be tested for moisture only.

(ii) pH.--One sample shall be taken from each vat or batch of cottage cheese.

(iii) Phosphatase.--As many samples should be taken as are necessary to spot check effectiveness of approved pasteurization procedure.

(c) Test methods.--(1) Microbiological.--Microbiological determinations shall be made for coliform, psychrophiles and yeasts and molds. These tests shall be made in accordance with the methods described in the latest edition of Standard Methods for the Examination of Dairy Products, published by the American Public Health Association.

(2) Chemical.-- Chemical analysis shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the Association of Official Agricultural Chemists, published by the Association of Official Agricultural Chemists, the latest edition of Standard Methods, or by other methods giving equivalent results.

58.527 Packaging and general identification.-- (a) Containers.

Containers used for packaging cottage cheese shall be any commercially acceptable multiple use or single service container or packaging material which will satisfactorily protect the contents through the regular channels of trade without significant impairment of quality with respect to flavor, or contamination under normal conditions of handling. Caps or covers which extend over the lip of the container shall be used on all cups or tubs containing 2 pounds or less, to protect the product from contamination during subsequent handling.

(b) Packaging.--The cheese shall be packaged in a sanitary manner and automatic filling and capping equipment should be used on all small sizes. Hand filling and capping should be limited to larger containers which cannot be filled and capped mechanically. The containers shall be check weighed during the filling operation to assure they are filled uniformly to not less than the stated net weight on the container. Also care shall be taken that the creamed cottage cheese be of uniform consistency at the time of packaging to assure legal composition in all packages.

(c) General identification.-- Bulk packages containing cottage cheese shall be adequately and legibly marked with the name of the product, net weight, name and address of the manufacturer, lot number, code or date of packaging and any other identification as may be required. Consumer size packaged products shall be legibly marked with the name of the product, net weight, name and address of manufacturer or distributor, code or date of packaging and any other identification as may be required.

58.528 Storage of Finished Product.--Cottage cheese after packaging shall be promptly stored at a temperature of 45° F. or lower to maintain

quality and condition until loaded for distribution. During distribution and storage prior to sale the product should be maintained at a temperature of 45° F. or lower. The product shall not be exposed to foreign odors or conditions such as drippage or condensation that might cause package or product damage. Packaged cottage cheese shall not be placed directly on floors.

QUALITY REQUIREMENTS FOR COTTAGE CHEESE BEARING THE USDA QUALITY APPROVED INSPECTION SHIELD

58.529 Physical requirements.-- (a) Flavor and odor.--The cottage cheese shall possess a mild pleasing flavor, similar to fresh whole milk or light cream and may possess the delicate flavor and aroma of a good lactic starter. The product may possess to a slight degree a feed, acid, or salty flavor but shall be free from chalky, bitter, utensil, fruity, yeasty, or other objectionable flavors.

(b) Body and texture.-- The curd particles shall have a meaty texture, but sufficiently tender to permit proper absorption of cream or cheese dressing. The texture shall be smooth and velvety and shall not be mealy, crumbly, pasty, sticky, mushy, watery, rubbery or slimy or possess any other objectionable characteristics of body and texture. Small curd style (cut with 1/4 inch knives) shall have curd particles approximately 1/4 inch or less in size. Large curd style (cut with knives over 1/4 inch) shall have curd particles approximately 3/8 inch or more in size.

(c) Color and appearance.--The finished cottage cheese, creamed or plain curd, shall have an attractive natural color and appearance with curd particles of reasonably uniform size. The creamed cottage cheese shall be uniformly mixed with the cream or dressing properly absorbed or adhering to the curd so as to prevent excessive drainage.

58.530 Microbiological requirements at time of packaging in 3 out of 5 consecutive samples.

- (a) Coliform.-- Not more than 10 per gram
- (b) Psychrophiles.--Not more than 100 per gram
- (c) Yeasts and molds.--Not more than 10 per gram

58.531 Chemical requirements.--

- (a) Moisture.--Not more than 80.0 percent
- (b) Milkfat.--Not less than 4.0 percent (no requirement for dry cottage cheese)
- (c) pH.-- Not higher than 5.2
- (d) Phosphatase.--Not more than 4 micrograms of phenol equivalent per gram of cheese

58.532 Keeping quality requirements.--Keeping quality samples taken from the packaging line shall be held at 50° F. for 10 days. At the end of the 10 day period the samples shall possess a satisfactory flavor and appearance and shall be free from bitter, sour, fruity, or other objectionable flavors and odors. The surface shall not be discolored, translucent, slimy or show any other objectionable condition.

SUPPLEMENTAL SPECIFICATIONS FOR  
PLANTS MANUFACTURING, PROCESSING AND PACKAGING ICE  
CREAM AND RELATED PRODUCTS

DEFINITIONS

58.605 Meaning of words.-- For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa, as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning as applied to frozen desserts meeting FDA requirements and briefly defined as follows:

(a) Ice cream.-- The product prepared by freezing, while stirring, a pasteurized mix composed of milkfat, milk solids-not-fat, sweetening ingredients, stabilizers and emulsifiers, natural and/or artificial flavor and color. The dairy products used in preparation of the mix shall not be neutralized by the addition of chemical reagents. The finished product shall conform to the requirements of Section 20.1 "Definitions and Standards of Identity for Frozen Desserts," U. S. Food and Drug Administration (21 CFR 20.1).

(b) Frozen custard.-- The same product as ice cream except that egg ingredients are used in such quantity, that the total weight of egg yolk solids used, is not less than 1.4 percent of the weight of the finished frozen custard. The finished product shall conform to the requirements of Section 20.2 "Definitions and Standards of Identity for Frozen Desserts," U. S. Food and Drug Administration (21 CFR 20.2).

(c) Ice milk.--The product prepared from the same ingredients and in the same manner as ice cream. Except that its milkfat content is more than 2 percent but not more than 7 percent and the total milk solids are not less than 11 percent. The finished product shall conform to the

requirements of Section 20.3 "Definitions and Standards of Identity for Frozen Desserts," U. S. Food and Drug Administration (21 CFR 20.3).

(d) Fruit sherbet.--The product prepared by freezing, while stirring, a pasteurized mix composed of fruit ingredients, sweetening ingredients, stabilizers and emulsifiers, milk solids, harmless food grade acids, natural and/or artificial flavor and color. The finished product shall conform to the requirements of Section 20.4 "Definitions and Standards of Identity for Frozen Desserts," U. S. Food and Drug Administration (21 CFR 20.4).

(e) Milkfat.--The fat derived from milk by gravitational or mechanical means. The optional sources of milkfat approved for use in ice cream and related products are: liquid, dried or plastic cream; natural, concentrated or dried sweet cream buttermilk; and butter or butteroil.

(f) Milk-solids-not-fat.--Includes proteins, milk sugar, various minerals and certain water-soluble vitamins of milk. The optional sources of these solids, approved for use in ice cream and related products, in addition to the various forms of milk, cream and buttermilk are: concentrated, evaporated, condensed, superheated condensed, sweetened condensed, and non-fat dry milk. Caseinates may be used if added in addition to the required total milk solids content. Cheese whey as provided in F&D Standard of Identity for Frozen Desserts, either natural, concentrated or dried may be used if added in the prescribed amounts.

(g) Sweetening ingredients.--Those agents used to impart the desired degree of sensual sweetness as well as body, to the finished product. Sweetening agents approved by the U. S. Food and Drug Administration may be used, such as sucrose in the form of dry or liquid sugar, dextrose or corn sugar in dry or liquid form, glucose in dry or liquid form,

invert sugar in paste or liquid, maltose sirup, fructose N. F. and lactose. Individual sweetening ingredients may contain one or more of the approved sweetening agents.

(h) Flavoring ingredients.--Those ingredients that, when added to the mix or partially frozen product, impart a characteristic and desired flavor to the finished product. Natural and/or artificial flavors approved by the U. S. Food and Drug Administration may be used.

(i) Stabilizing ingredients.-- Those agents used to help bind the water and add to the body and appearance of the finished product. Stabilizing ingredients approved by the U. S. Food and Drug Administration may be used, such as, agar-agar, algin, calcium sulphate, egg white, gelatin, carrageenan and salts of carrageenan, oat gum, gum acacia, locust bean gum, guar seed ~~gum~~, gum tragacanth, pectin, lecithin, sodium carboxymethyl-cellulose, psyllium seed husk, gum kayara, furcelleran and salts of furcelleran.

(j) Emulsifying ingredients.--Those agents used to help stabilize the fat and water emulsion, improve the body, and give a dry appearance to the finished product. Emulsifying ingredients approved by the U. S. Food and Drug Administration may be used , such as monoglycerides, diglycerides and specific polyoxyethylenes.

(k) Acid ingredients.--Those harmless food acids used to acidulate fruit sherbet mixes to reach the desired acidity in the finished product. Acid ingredients approved by the U. S. Food and Drug Administration may be used, such as, citric, tartaric, lactic, ascorbic, phosphoric, and malic acid.

(l) Coloring ingredients.--Those agents, when added to the mix, that will impart the desired color to the finished product. Approved coloring ingredients, are those food grade colors certified by the

U. S . Food and Drug Administration, for use in food products for human consumption.

(m) Overrun.--The trade expression used to reference the increase in volume of the frozen product over the volume of the mix. This increase in volume is due to air being whipped into the product during the freezing process. It is expressed as percent of the volume of the mix.

(n) Mix.--The trade name for the combined and processed ingredients which after freezing become a frozen dessert.

#### ROOMS AND COMPARTMENTS

58.619 Mix processing room.--The rooms used for combining mix ingredients and processing the mix shall meet the applicable requirements for rooms specified in 58.126. The room shall be ventilated to remove moisture and prevent condensation from forming on walls and ceiling. The room shall be well lighted.

58.620 Freezing and packaging rooms.--The rooms used for freezing and packaging frozen desserts shall be adequate in size and maintained in a clean and sanitary condition. The room shall be constructed in the same manner as prescribed above for mix rooms.

58.621 Freezing tunnels.--Freezing tunnels used for quick freezing at extremely low temperatures shall be designed and constructed as to insure ease in cleaning and satisfactory conditions of operation.

58.622 Hardening and storage rooms.--Hardening and storage rooms for frozen desserts shall be constructed of satisfactory material for this purpose. The room shall be maintained in a clean and orderly manner. Adequate shelves, bins, or pallets shall be provided to keep the packages of finished products off the floor and to prevent damage to the containers. Sufficient refrigeration should be provided to insure

adequate storage temperature (-10° or lower). Air shall be circulated to maintain uniform temperature throughout the room. A vestibule or double entry way should be provided to minimize heat shock of the frozen products.

#### EQUIPMENT AND UTENSILS

58.623 Homogenizer.--Homogenizer shall meet 3-A Sanitary Standards.

58.624 Freezers.--Product contact surfaces of freezers used to lower the temperature of the liquid mix to a semi-frozen mass by a stirring action shall be constructed of stainless steel or equally corrosion resistant metal and all parts easily accessible for cleaning and sanitizing. Batch continuous freezers should meet the applicable 3-A Standards.

58.625 Fruit or syrup feeders.--Fruit or syrup feeders which inject flavoring material into the semi-frozen product, just prior to the filling of the cartons with the semi-frozen product. Product contact surfaces shall be constructed of stainless steel or equally corrosion resistant metal and all pumps shall be in accordance to 3-A Sanitary Standards for dairy equipment. The feeder shall be constructed to enable complete disassembly for cleaning and sanitizing.

58.626 Packaging equipment.-- Packaging equipment designed to mechanically fill and close single service containers with frozen desserts shall be constructed so that all product contact surfaces shall be of stainless steel or equally corrosion-resistant metal. Wherever applicable, 3-A Standards covering material, design and fabrication should be adhered to. All product contact surfaces shall be easily accessible for cleaning. The design and operation of the machine shall in no way contaminate the container or the finished product placed therein.

QUALITY SPECIFICATIONS FOR RAW MATERIAL

58.627 Milk and dairy products.--(a) To produce ice cream and related products the raw milk and cream shall meet the quality requirements as prescribed in Section 58.132 of this subpart, except that only commingled milk and cream meeting the bacteriological requirements of No.1 shall be used.

(b) USDA Graded products.--Dairy products used in the manufacture of officially identified frozen desserts for which there is a U. S. grade established, (nonfat dry milk, whole milk, buttermilk and whey) shall be U. S. Extra Grade or better, and in the case of unsalted butter shall be no lower than U. S. Grade A. Dairy products for which there is no USDA grade shall meet the applicable requirements of this part which permit such product to bear the USDA Quality Approved Inspection Shield.

58.628 Sweetening agents.--Sweetening agents shall be clean and wholesome and consist of one or more of the approved sweetners listed in Section 58.605 of this Supplement.

58.629 Flavoring agents.--Flavoring agents either natural or artificial shall be wholesome and free from staleness. They must impart the desired characteristic to the finished product. Flavoring agents shall be one or more of those approved in Section 58.605 of this Supplement.

58.630 Stabilizers.--Stabilizers shall be clean and wholesome and consist of one or more of those approved in Section 58.605 of this Supplement.

58.631 Emulsifiers.--Emulsifiers shall be clean and wholesome and consist of one or more of those approved in Section 58.605 of this Supplement.

58.632 Acid.--Acids used in sherbet shall be wholesome and of food grade quality and consist of one or more of those approved in Section 58.605 of this Supplement.

58.633 Color.--Coloring used for ice cream and related products shall be those certified by the U. S. Food and Drug Administration as safe for human consumption.

#### OPERATIONS AND OPERATING PROCEDURES

58.634 Assembling and combining mix ingredients.--The assembling and combining of mix ingredients for processing shall be in accordance with clean and sanitary methods and shall be consistent with good commercial practices. All raw materials shall be subjected to inspection for quality and condition prior to being combined and processed into the finished mix. All necessary precautions shall be taken to prevent the contamination of any raw material or the finished mix with any foreign substance.

58.635 Pasteurization of the mix.--Every particle of the mix, except added flavoring ingredients, shall be pasteurized at not less than 155° F. and held at that temperature for 30 minutes or for 175° F. for 25 seconds; or it may be pasteurized by any other equivalent temperature and holding time which will assure adequate pasteurization.

58.636 Homogenization.-- Homogenization of the pasteurized mix shall be accomplished to effectively reduce the size of the milkfat globules and evenly disperse them throughout the mix.

58.637 Cooling the mix.--The mix shall be immediately cooled to a temperature of 45° F. or lower, and stored at this temperature until further processing begins.

58.638 Freezing the mix.--After the mix enters the freezer, it should be frozen as rapidly as possible to assure the formation of minute crystals. Proper adjustment of rate of flow, refrigerant and vacuum controls

shall be achieved to assure correct overrun and consistency of the product for packaging and further freezing.

58.639 Addition of flavor.--The addition of flavoring ingredients to semi-frozen mix just prior to packaging shall be performed in a clean and sanitary manner. Care shall be taken to insure the flavor injection equipment has been properly cleaned and sanitized prior to use and that the flavor ingredients are of good quality and wholesome in nature.

58.640 Packaging.--The packaging of the semi-frozen product shall be done by means which will in no way contaminate the container or the product. When single service containers and lids are used, they shall be of good construction and protect the finished product. Containers used for frozen products shall be stored and handled in a sanitary manner so as to protect them from dust and bacterial contamination.

58.641 Hardening and storage.--Immediately after the semi-frozen product is placed in its intended container it shall be placed in a hardening tunnel or hardening room to continue the freezing process. Rapid freezing to  $0^{\circ}$  to  $-15^{\circ}$  F. is desirable to produce a good textured product.

58.642 Quality control tests.--All mix ingredients shall be subject to inspection for quality and condition throughout each processing operation. Quality control tests shall be made on flow line samples as often as necessary to check the effectiveness of processing and sanitation and as an aid in correcting deficiencies. Routine analysis shall be made on raw materials and finished products to assure adequate composition control.

58.643 Frequency of sampling.--(a) Microbiological.--One sample shall be taken from each batch of mix, and for the finished frozen product one sample from each flavor made.

(b) Composition.--Sampling and testing for fat and solids-not-fat shall be made on each batch of mix manufactured. Spot checks shall be made on the finished products as often as is necessary to assure compliance with composition standards.

(c) Weight or volume control.--Representative samples of the packaged products shall be checked during the packaging operation to assure compliance with the stated volume on the container as well as weight and overrun requirements.

58.644 Test methods.--(a) Microbiological. Microbiological determinations shall be made in accordance with the methods described in the latest edition of Standard Methods for the Examination of Dairy Products.

(b) Chemical. Chemical analysis shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the Association of Official Agricultural Chemists, the latest edition of Standard Methods, or by other methods giving equivalent results.

58.645 General identification.--The various types of frozen desserts shall be packaged and labeled in accordance with the provisions established for each type of product by the U. S. Food and Drug Administration. In addition, each package of mix or frozen product offered for sale shall be coded to identify the date the product was processed or frozen and packaged. This does not imply that individual novelty items require coding. Secondary containers holding novelties shall be coded.

58.646 Official identification.--Only ice cream and related products manufactured in accordance with the requirements of this part and with the applicable requirements in Subpart A of this part which have been officially inspected in process and found to be in compliance with these requirements may be identified with the official USDA Quality Approved Inspection Shield.

QUALITY REQUIREMENTS AND SPECIFICATIONS FOR FINISHED PRODUCTS  
BEARING THE USDA QUALITY APPROVED INSPECTION SHIELD

58.647 Composition requirements for ice cream.--(a) Milk fat.

Not less than 10 percent by weight, or when fruits, nuts and other such ingredients are used for flavoring, not less than 8 percent by weight.

(b) Total milk solids,not fat.--Not less than 20 percent by weight, or when fruit, nuts, and other such ingredients are used for flavoring, not less than 16 percent by weight.

(c) Stabilizers.--Kinds and amounts may be used as specified by the U. S. Food and Drug Administration.

(d) Emulsifiers.--Kinds and amounts may be used as specified by the U. S. Food and Drug Administration.

(e) Food solids per gallon.--The minimum total food solids weight per gallon must be 1.6 per gallon.

(f) Weight per gallon.--For the finished product the weight per gallon must be 4.5 pounds or more.

58.648 Microbiological requirements for ice cream.--The finished product shall contain not more than 50,000 bacteria per gram as determined by the standard plate count, and shall contain not more than 10 coliform organisms per gram for plain and not more than 20 coliform per gram in chocolate, fruit, nut or other flavors in three out of five samples.

58.649 Physical requirements for ice cream.-- (a) Flavor. The flavor of the finished ice cream shall be pleasing and desirable, and characteristic of the fresh milk and cream and the particular flavoring used.

(b) Body and texture.-- The body shall be firm, have substance and readily melt to a creamy consistency when exposed to room temperatures; the texture shall be fine, smooth, and have the appearance of creaminess throughout.

(c) Color.-- The color shall be attractive, pleasing, uniform and characteristic of the flavor represented.

58.650 Requirements for frozen custard.-- The same requirements apply as for ice cream except plain frozen custard shall have a minimum egg yolk solids content of 1.4 per cent, and 1.12 per cent when fruits, nuts and other such ingredients are used for flavoring.

58.651 Requirements for ice milk.-- The requirements are the same as for ice cream except; (a) The minimum milk fat content shall be 2 per cent by weight and the maximum milk fat content 7 per cent by weight, (b) The total milk solids content shall be no less than 11 per cent by weight, (c) The minimum total food solids weight per gallon shall be 1.3 pounds, (d) No reduction in the standards are permitted when fruits, nuts and other such ingredients are used for flavoring.

58.652 Composition requirements for fruit sherbet.-- (a) Milk fat. Shall contain a minimum of 1 percent by weight of the finished product, and shall contain no more than 2 percent by weight.

(b) Milk solids.-- The total milk solids minimum shall be 2 per cent by weight and shall be no more than 5 percent by weight of the finished product.

(c) Stabilizer.--Kinds and amounts may be used as specified by the U. S. Food and Drug Administration.

(d) Emulsifiers.--Kinds and amounts may be used as specified by the U. S. Food and Drug Administration.

(e) Amounts of flavor ingredients.--(1) Citrus sherbets.--Citrus sherbets shall contain a minimum of 2 percent fruit. (2) Berry Sherbets. Berry sherbets shall contain a minimum of 6 percent fruit.

(3) Other sherbets. Other fruit sherbets shall contain a minimum of 10 percent fruit by weight of the finished product.

(f) Acidity.--The minimum acidity shall be no lower than 0.35 percent by weight of the finished product, figured as lactic acid.

(g) Total food solids.--No minimum amount required.

(h) Weight per gallon.--For sherbet, the minimum weight per gallon shall be 6.0 pounds.

58.653 Microbiological requirements for fruit sherbet.--The finished product shall contain not more than 50,000 bacteria per gram as determined by the standard plate count and shall contain not more than 10 coliform organisms per gram in three out of five samples.

58.654 Physical requirements for fruit sherbet.--(a) Flavor. The flavor of the finished fruit sherbet shall be pleasing and desirable and characteristic of the particular flavoring used and shall impart a sweet yet tart sensation.

(b) Body and texture.--The body shall be firm, compact, somewhat chewy and readily melt to an even syrupy consistency at room temperatures; the texture shall be smooth but not as fine as in ice cream and shall be even throughout.

(c) Color.--The color shall be attractive, pleasing, uniform and characteristic of the flavor represented.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING, PROCESSING AND PACKAGING PASTEURIZED PROCESS  
CHEESE AND RELATED PRODUCTS

DEFINITIONS

58.705 Pasteurized Process Cheese and Related Products.--Pasteurized

Process cheese and related products are the foods which conform to the provisions of Sections 19.750 to 19.790, "Definitions and Standards of Identity for Cheese and Cheese Products," U. S. Food and Drug Administration (21 CFR 19.750-19.790).

EQUIPMENT AND UTENSILS

58.706 General Construction Repair and Installation.--The equipment and utensils used for the handling and processing of cheese products shall be as specified in Section 58.128 of this subpart. In addition, for certain other equipment the following requirements shall be met.

58.707 Conveyors.--Conveyors shall be constructed of material which can be properly cleaned, will not rust, or otherwise contaminate the cheese, and shall be maintained in good repair.

58.708 Grinders or Shredders.--The grinders or shredders used in the preparation of the trimmed and cleaned natural cheese for the cookers shall be adequate in size. Product contact surfaces shall be of corrosion-resistant material, and of such construction as to prevent contamination of the cheese and to allow thorough cleaning of all parts and product contact surfaces.

58.709 Cookers.-- The cookers shall be the steam jacketed or direct steam type. They shall be constructed of stainless steel or other equally corrosion-resistant material. All product contact surfaces shall be readily accessible for cleaning. Each cooker shall be equipped

with an indicating thermometer, and should be equipped with a temperature recording device. The recording thermometer stem may be placed in the cooker if satisfactory time charts are used, if not, the stem shall be placed in the hotwell or filler hopper. Steam check valves on direct steam type cookers shall be mounted flush with cooker wall, be constructed of stainless steel and designed to prevent the back up of product into the steam line, or the steam line shall be constructed of stainless steel pipes and fittings which can be readily cleaned. If direct steam is applied to the product only culinary steam shall be used (see Sec. 53.127(d)).

58.710 Fillers.--The hoppers of all fillers shall be covered but the cover may have sight ports. If necessary, the hopper may have an agitator to prevent buildup on side wall. The filler valves and head shall be kept in good repair, capable of accurate measurements.

#### QUALITY SPECIFICATIONS FOR RAW MATERIAL

58.711 Cheddar, Colby, Washed or Soaked Curd, Granular or Stirred Curd Cheese.-- Cheese, used in the manufacture of pasteurized Process cheese products which are identified with the USDA Quality Approved Inspection Shield, shall possess a pleasing and desirable flavor and odor consistent with the age of the cheese; shall have body and texture characteristics which will impart the desired body and texture characteristics in the finished product; and shall possess finish and appearance characteristics which will permit removal of all packaging material and surface defects. The cheese shall possess the above characteristics but may possess the following defects, provided the quantity of the cheese with defects as listed in Tables I and II is limited, to assure compliance with the specifications of the finished product.

Table I

<u>Flavor</u>	*
Feed	D
Acid	D
Flat	D
Bitter	S
Fruity	S
Utensil	S
Whey-Taint	S
Yeasty	S
Malty	S
Old Milk	S
Weedy	S
Unclean	S
Barny	S
Lipase	S
Sulfide	S
Rancid	VS
Onion	VS

Table IIBody and Texture

Curdy	D
Coarse	D
Open	D
Sweet Holes	D
Short	D
Mealy	S
Weak	D
Pasty	D
Crumbly	D
Gassy	S
Slitty	S
Corky	S
Pinny	S

Table IIIFinish

Surface mold	D
Mold under wrapper or bandage	D
Penetrating surface mold	VS
Sour rind	VS
Surface rot or rind rot	VS
Sour surface (rindless)	VS

\* (VS means very slight, S slight, D definite)

58.712 Swiss.--Swiss cheese used in the manufacture of pasteurized process cheese and related products bearing official identification shall be U. S. Grade B or better, except that the cheese may be blind or possess finish characteristics which do not impair the interior quality.

58.713 Gruyere.--Gruyere cheese used in the manufacture of process cheese and related products shall be of good wholesome quality and except for smaller eyes and sharper flavor shall meet the same requirements as for Swiss cheese.

58.714 Cream cheese, Neufchatel cheese.--Mixed with other foods, or used for spreads and dips shall possess a fresh, pleasing and desirable flavor.

58.715 Cream.--Cream shall be pasteurized, sweet, have a pleasing and desirable flavor and be free from objectionable flavors, and shall be obtained from milk which complies with the quality requirements as specified in section 58.132 of this Subpart.

58.716 Nonfat dry milk.--Nonfat dry milk used in officially identified cheese products shall meet the requirements of U. S. Extra Grade except that the moisture content may be in excess of that specified for the particular grade.

58.717 Whey.--Condensed or dry whey used in officially identified cheese products shall meet the requirements for USDA Extra Grade except that the moisture requirement for dry whey may be waived.

58.718 Flavor ingredients.--Flavor ingredients used in process cheese and related products shall be those permitted by the Federal Standards of Identity, and in no way deleterious to the quality or flavor of the finished product. In the case of bulky flavoring ingredients such as pimento, the particles shall be, to at least a reasonable degree, uniform in size, shape and consistency. The individual types of flavoring materials shall be uniform in color and shall impart the characteristic flavor desired in the finished product.

58.719 Coloring.--Coloring shall be Annatto or any other cheese or butter color which is approved by the U. S. Food and Drug Administration.

58.720 Acidifying agents.--Acidifying agents if used shall be those permitted by the Federal Standards of Identity for the specific pasteurized process cheese product.

58.721 Salt.--Salt shall be white refined sodium chloride of food grade quality and free from extraneous material. Iodized salt shall not be used.

58.722 Emulsifying agents.--Emulsifying agents shall be those permitted by the Federal Standards of Identity for the specific pasteurized process cheese product, and shall be free from extraneous material.

#### OPERATIONS AND OPERATION PROCEDURES

58.723 Basis for selecting cheese for processing.--One sample unit from each vat of cheese shall have been examined to determine fat and moisture content and suitability of the vat for use in process cheese products in accordance with the flavor, body and texture, and finish and appearance characteristics permitted in Tables I, II, III of Section 58.711 of this Supplement, and to determine the characteristics it will contribute to the finished product when blended with other cheese. The cheese included in each blend shall be selected on the basis of the desirable qualities which will result in the desired finished product. Recook from equivalent blends may be used at not over 2.0 percent per cooker batch. Hot cheese from the filler may be added to the cooker in amounts up to 10 percent if the cheese is added at the end of the cooking period.

58.724 Blending.--To as great an extent as is practical each vat of cheese shall be divided and distributed throughout numerous cooker batches. The purpose being to minimize the preponderance and consequent influence of any one vat on the characteristics of the finished product, and to promote as much uniformity as is practical. In blending also consider the final composition requirements for fat and moisture. Quantities of salt, color, emulsifier and other allowable ingredients to be added shall be calculated and predetermined for each cooker batch.

58.725 Trimming and cleaning.-- The natural cheese shall be cleaned free of all non-edible portions. Paraffin and bandages as well as rind surface, mold or unclean areas or any other part which is unwholesome or unappetizing shall be removed.

58.726 Cutting and grinding.--The trimmed and cleaned cheese shall be cut into sections of convenient size to be handled by the grinder or shredder. The grinding and mixing of the blended lots of cheese shall be done in such a manner as to insure a homogeneous mixture throughout the batch.

58.727 Adding optional ingredients.--As each batch is added to the cooker, the predetermined amounts of salt, emulsifiers, color, or other allowable optional ingredients shall be added. However, a special blending vat may be used to mix the ground cheese and other ingredients before they enter the cooker, to provide composition control.

58.728 Cooking the batch.--Each batch of cheese within the cooker, including the optional ingredients shall be thoroughly commingled and the contents pasteurized at a temperature of at least 158° F. and held at that temperature for not less than 30 seconds or any other equally effective

combination of time and temperature approved by the Administrator. Care shall be taken to prevent the entrance of cheese particles or ingredients after the cooker batch of cheese has reached the final heating temperature. After holding for the required period of time, the hot cheese shall be emptied from the cooker as quickly as possible.

58.729 Forming containers.--Containers either lined or unlined shall be assembled and stored in a sanitary manner to prevent contamination. The handling of containers by filler crews shall be done with extreme care and observance of personal cleanliness. Pre-forming and assembling of pouch liners and containers shall be kept to a minimum and the supply rotated to limit the length of time exposed to possible contamination prior to filling.

58.730 Filling containers.--Hot fluid cheese from the cookers may be held in hotwells or hoppers to assure a constant and even supply of processed cheese to the filler or slice former. Filler valves shall effectively measure the desired amount of product into the pouch or container in a sanitary manner and shall cut off sharply without drip or drag of cheese across the opening. An effective system shall be used to maintain accurate and precise weight control. Damaged or unsatisfactory packages shall be removed from production, and the cheese may be salvaged into sanitary containers, and added back to cookers.

58.731 Closing and sealing containers.--Pouches, liners, or containers having product contact surfaces, after filling shall be folded or closed and sealed in a sanitary manner, preferably by mechanical means, so as to assure against contamination. Each container in addition to other required labeling shall be coded in such a manner as to be easily identified as to date of manufacture by lot or subplot number.

58.732 Cooling the packaged cheese.--After the containers are filled they shall be stacked, or cased and stacked in such a manner as to prevent breaking of seals due to excessive bulging and to allow immediate progressive cooling of the individual containers of cheese. As a minimum the cheese should be cooled to a temperature of 100° F. or lower within 24 hours after filling. The temperature of the cheese should be reduced further, before being shipped or if storage is intended.

58.733 Quality control tests. (a) Chemical analyses.-- The following chemical analyses shall be performed in accordance with the latest edition of the Official Methods of Analysis of the AOAC, or in accordance with methods that give equivalent results.

(1) Natural cheese.--Each vat of natural cheese used in the manufacture, of pasteurized process cheese products shall have been tested prior to usage to determine its moisture and fat content.

(2) Pasteurized Process cheese products.--As many samples shall be taken of the finished product direct from the cooker, hopper or filler as is necessary to assure compliance with composition requirements. Spot checks shall be made on samples from the cooker as frequent as is necessary to indicate pasteurization by means of the phosphatase test, as well as any other tests necessary to assure good quality control.

(b) Examination of physical characteristics.-- As many samples shall be taken as is necessary to assure meeting the required physical characteristics of the products. Samples shall be taken from the filler line for each product run and cooled to  $70^{\circ} \pm 5^{\circ}$  F. for examination of its physical characteristics. The sample unit shall be examined at  $70^{\circ} \pm 5^{\circ}$  F. on the day of operation after the date of processing for the following characteristics. (1) Finish and appearance, (2) flavor, (3) color, (4) body and texture and (5) slicing or spreading properties.

(c) Keeping quality.--During processing or preferably from the cooled stock select at random from each hours, product production run, one unit package of product. The sample shall be stored at  $70^{\circ} \pm 5^{\circ}$  F. for 30 days for evaluation of physical characteristics as in (b) above. Additional samples may be selected and held at different temperatures or time.

(d) Weight control.--During the filling operation as many samples shall be randomly selected and weighed from each production run as is necessary to assure accuracy of the net weight established for the finished products.

QUALITY REQUIREMENTS FOR PROCESSED CHEESE PRODUCTS BEARING THE  
USDA QUALITY APPROVED INSPECTION SHIELD

58.734 Pasteurized process cheese.--Shall conform to the provisions of the Definitions and Standards of Identity for Pasteurized Process Cheese and Related Products, U. S. Food and Drug Administration. The average age of the cheese in the blend shall be such that the desired flavor, body and texture will be achieved in the finished product. The quality of pasteurized process cheese shall be determined on the basis of flavor, body and texture, color and finish and appearance.

(a) Flavor.--Has a pleasing and desirable mild cheese flavor and odor characteristic of the variety or varieties of cheese ingredients used. If additional optional ingredients are used they shall be incorporated in accordance with good commercial practices and the flavor imparted shall be pleasing and desirable. May have a slight cooked or very slight acid or emulsifier flavor; is free from any undesirable flavors and odors.

(b) Body and texture.--Shall have a medium-firm, smooth and velvety body free from uncooked cheese particles. Is resilient and not tough, brittle, short, weak, or sticky. It shall be free from pin holes or openings except those caused by trapped steam. The cheese shall slice freely, and shall not stick to the knife or break when cut into approximately 1/8 inch slices. If in sliced form, the slices shall separate readily.

(c) Color.--May be colored or uncolored but shall be uniform throughout. If colored it shall be bright and translucent and not be dull or faded. To promote uniformity and a common reference to describe color use the color designations as depicted by the National Cheese Institute standard color guide for natural cheese.

(d) Finish and appearance.--The wrapper may be slightly wrinkled but shall envelop the cheese, adhere closely to the surface, and be completely sealed and not broken or soiled.

58.735 Pasteurized process cheese food.--Shall conform to the provisions of the Definitions and Standards of Identity for Pasteurized Process Cheese Food and Related Products, U. S. Food and Drug Administration. The average age of the cheese in the blend shall be such that the desired flavor, body and texture will be achieved in the finished product. The quality of pasteurized process cheese food shall be determined on the basis of flavor, body and texture, color, and finish and appearance.

(a) Flavor.--Has a pleasing and desirable mild cheese flavor and odor characteristic of the variety or varieties of cheese ingredients used. If additional optional ingredients are used they shall be incorporated in

accordance with good commercial practices and the flavor imparted shall be pleasing and desirable. May have a slight cooked or very slight acid or emulsifier flavors; is free from any undesirable flavors and odors.

(b) Body and texture.--Shall have a reasonably medium-firm smooth and velvety body and free from uncooked cheese particles. Is resilient and not tough, brittle, short or sticky. It shall be free from pin holes or openings except those caused by trapped steam. The product shall slice freely with only a slight amount of sticking and shall not break when cut into approximately 1/8 inch slices. If in sliced form, the slices shall separate readily.

(c) Color.--May be colored or uncolored but shall be uniform throughout. If colored it shall be bright and translucent and not be dull or faded. To promote uniformity and a common reference to describe color use the color designations as depicted by the National Cheese Institute standard color guide for natural cheese.

(d) Finish and appearance.--The wrapper may be slightly wrinkled but shall envelop the cheese, adhere closely to the surface, and be completely sealed and not broken or soiled.

58.736 Pasteurized process cheese spread.--Shall conform to the provisions of the Definitions and Standards of Identity for Pasteurized Process Cheese Spreads and Related Products, U. S. Food and Drug Administration. The pH of pasteurized process cheese spreads shall not be below 4.0.

The quality of pasteurized process cheese spreads shall be determined on the basis of flavor, body and texture, color, and finish and appearance.

(a) Flavor.--Has a pleasing and desirable cheese flavor and odor characteristic of the variety or varieties of cheese ingredients used. If additional optional ingredients are used they shall be incorporated in accordance with good commercial practices and the flavor imparted shall be pleasing and desirable. May have a slight cooked, acid, or emulsifier flavor; is free from any undesirable flavors and odors.

(d) Body and texture.--Shall have a smooth body free from uncooked cheese particles and when packaged shall form into a homogeneous plastic mass, and be free from pin holes or openings except those caused by trapped steam. Product made for slicing shall slice freely when cut into approximately 1/3 inch slices with only a slight amount of sticking. Product made for spreads shall be spreadable at 70° F.

(c) Color.--May be colored or uncolored but shall be uniform throughout. If colored it shall be bright and translucent and not be dull or faded. To promote uniformity and a common reference to describe color the color designations as depicted by the National Cheese Institute standard color guide for natural cheese may be used.

(d) Finish and appearance.--Wrappers, if used, may be slightly wrinkled but shall envelop the cheese, adhere closely to the surface, and be completely sealed and not broken or soiled. Other containers made of suitable materials shall be completely filled, sealed and not broken or soiled.

58.737 Explanation of Terms.--Blend set up.--(a) The trade term for a particular group of vat lots of natural cheese selected to form a blend based upon their combined ability to impart the desired characteristics to a pasteurized process cheese product.

(b) Cooker batch.--The amount of natural cheese and added optional ingredients placed into a cooker at one time, heated to pasteurization temperature, and held for the required length of time.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS PROCESSING,  
MANUFACTURING AND PACKAGING MILK OR  
MILK PRODUCTS

DEFINITIONS

58.805 Milk and Milk Products.-- For the purpose of this supplement the definitions of milk and milk products shall be those as established in Part I, Section 1. Definitions, "Grade A Pasteurized Milk Ordinance", 1965 Recommendations of the United States Public Health Service.

- (a) Milk
- (b) Goat milk
- (c) Cream
- (d) Light cream, coffee cream or table cream
- (e) Whipping cream
- (f) Light whipping cream
- (g) Heavy cream or heavy whipping cream
- (h) Whipped cream
- (i) Whipped light cream, coffee cream, or table cream
- (j) Sour cream or cultured sour cream
- (k) Half-and-Half
- (l) Sour Half and Half or cultured Half and Half
- (m) Reconstituted or recombined milk and milk products
- (n) Concentrated milk and concentrated milk products
- (o) Skim milk or skimmed milk
- (p) Lowfat milk
- (q) Vitamin D milk and milk products
- (r) Fortified milk and milk products

- (s) Homogenized milk
- (t) Flavored milk or milk products
- (u) Buttermilk
- (v) Cultured buttermilk
- (w) Cultured milk or cultured whole milk buttermilk
- (x) Acidified milk and milk products
- (y) Milk products

#### EQUIPMENT AND UTENSILS

58.810 General construction repair and installation.--As a safeguard to insure proper pasteurization the 3-A Accepted Practices for the Sanitary Construction, Installation, Testing and Operation of High-Temperature Short-Time Pasteurizers shall be followed.

All equipment and utensils necessary to the processing of milk and milk products shall meet the same general requirements as outlined in section 58.128 of this subpart. In addition, for certain other equipment the following requirements shall be met.

58.811 Vacuum Chamber.--The vacuum chamber as used for flavor control shall be made of stainless steel or other equally corrosion-resistant material. The unit shall be easily cleaned and accessible for inspection. It shall be equipped with a vacuum breaker and a check valve at the product intake and a check valve at the product discharge line. If a direct steam vacuum chamber is used it shall be equipped with a ratio controller to regulate the composition of the product. Only direct steam

which meets the requirements for culinary steam shall be used. The incoming steam supply shall be regulated by an automatic solenoid valve which will cut off the steam supply in the event the flow diversion valve is not in the forward flow position. The condenser shall be equipped with a water level control and an automatic safety shutoff valve.

58.812 Leak protector valves.--Valves of this type shall be used on all batch pasteurizers and inlet pipelines connected to the pasteurizer during holding and emptying periods. They shall be of the type specified in the 3-A Sanitary Standards for Inlet and Outlet Leak Protector Plug Valves.

58.813 Fillers and sealers for single service containers.--The equipment used for forming, filling and sealing single service containers should meet the 3-A sanitary Standards for Fillers and Sealers of Single Service Containers for Milk and Fluid Milk Products.

58.814 Bottle washers and sanitizers.--To assure satisfactory cleaning and sanitizing of bottles the washer must be designed to handle the specific size and shape of the bottles used. The equipment must be maintained in a sanitary condition and in good running order. Cleaning and sanitizing solutions shall be changed as often as is necessary to be effective. Scale on the interior of the washer shall be kept to a minimum and all jets shall be kept operative. Adequate steam and water shall be supplied to assure efficient operation.

58.815 Case washers.--Case washers shall be constructed in such a manner as to insure thorough cleaning of cases. Adequate steam and hot water shall be supplied to insure drying of the cases before the filled containers are placed therein.

58.816 Bottle fillers and cappers.--Both gravity and vacuum type fillers shall be of sanitary design and all product contact surfaces, if metal, shall be made of stainless steel or equally corrosion resistant metal. Non-metallic product contact surfaces shall meet the requirements for 3-A Sanitary Standards for Rubber and Rubber-like Materials or for Multiple Use Plastic Materials.

#### QUALITY SPECIFICATIONS FOR RAW MATERIALS

58.817 Milk.--To process and package milk and milk products eligible for official identification with the USDA Quality Approved Inspection Shield, the source of the milk and cream must be from producers which have been inspected and are within a milk shed rated 90 or higher by the proper regulatory authorities in accordance with the current U. S. Public Health Service Grade A Pasteurized Milk Ordinance. In addition, the quality of the milk shall be as follows.

(a) Bacterial estimate.--Milk received from producers and commingled prior to pasteurization shall have a standard plate count not to exceed 300,000 per mililiter. If the regularly scheduled test on individual producer's milk indicates a bacterial count exceeding 100,000 the producer shall be notified and the milk retested within seven days. If upon retesting the bacterial count is not below the required 100,000 then the producer shall be notified by a field representative of the dairy plant who will call on the producer to aid in correcting the condition causing the high bacterial count. A sample of milk from the producer shall be checked each week until the bacterial count does not exceed 100,000 for five consecutive tests or if a producer's milk exceeds 500,000 on any single shipment, the producer's milk shall not be used for milk products bearing the USDA Quality Approved Inspection Shield.

(b) Sediment content.--The method and frequency of testing individual patrons milk for sediment content and the classification and acceptance of such milk shall be as outlined in section 58.134 of Subpart B. The rejection and exclusion of milk as pertains to sediment content shall be as in sections 58.136 and 58.137 of Subpart B.

(c) Sight and odor.--The odor of acceptable raw milk shall be fresh and sweet. The milk shall be free from objectionable feed and other off odors and it shall not show any abnormal condition (including, but not limited to, curdled, ropy, bloody, or mastitic condition), as indicated by sight, odor or other test procedures. Certain feed odors and flavors, which are volatile and can be removed by heating in a vaccum may be allowed if they in no way adversely affect the finished product.

(d) Temperature.--When farm bulk milk tanks are used, the temperature of the milk shall be no more than 45° F. at the time of pickup for delivery to the dairy plant. Milk cooled and stored by other means shall meet the same temperature requirement.

(e) Chemical adulterants.--Milk received at the dairy plant shall contain no more than the maximum limits of antibiotics and pesticides as established by the U. S. Food and Drug Administration. Milk containing excessive amounts of such adulterants shall be excluded from use.

58.818 Cream.--All cream used in dairy products which are packaged in containers bearing the USDA Quality Approved Inspection Shield shall not have a bacterial count prior to pasteurization of over 300,000 per ml. The cream shall be obtained only from milk which meets the requirements as outlined in section 58.817 of this supplement.

58.819 Dairy cultures.--Harmless bacterial cultures used in the development of lactic acid and flavor components in certain dairy products shall have a pleasing and desirable flavor and odor and shall have the ability to transmit these qualities to the finished dairy product. Dairy cultures shall be prepared from milk products meeting the same requirements as set in section 58.813.

58.820 Milk-solids-not-fat.--Milk solids-not-fat used to modify milk products shall be from milk meeting the same requirements as set in section 58.817.

#### OPERATIONS AND OPERATING PROCEDURES

58.821 General.--All plants processing, manufacturing and packaging milk or milk products bearing the USDA Quality Approved Inspection Shield must maintain a plant inspection rating of 90 or higher by the proper regulatory authorities in accordance with the current U. S. Public Health Service Grade A Pasteurized Milk Ordinance.

58.822 Bulk milk pickup.--A bulk milk hauler shall be clean in person and shall wear clean outer garments used exclusively for such work. Upon arrival at each farm he shall thoroughly wash his hands before performing the various operations required for the sampling and removal of milk from the farm bulk tank. He shall carefully examine the milk and classify it according to the requirements of this subpart. If the milk is acceptable, he shall properly sample the milk and store the samples using some form of refrigeration.

The examination of the milk shall be made before the agitator is started. He shall determine if the tank contains milk of desirable odor and appearance, and shall check temperature of the milk with an accurate

thermometer. After examination and acceptance the milk shall be thoroughly mixed and a washed and sanitized dipper shall be used to extract a sample of milk for test purposes. Samples shall be identified and stored at 45° F. or lower until delivered to the plant. The frequency of sampling and the tests to be performed will be covered in following sections of this supplement. The tank shall be completely emptied each time and the bulk hauler shall rinse the tank with water.

58.823 Transfer of bulk milk.--The transfer of bulk milk from tankers to storage vats or tanks at the dairy plant shall be done only after the milk has been checked at the intake by a qualified employee. The pooled milk shall be examined for temperature, odor and appearance and a sample taken for further analysis (see 58.813 and 58.831). After examination and acceptance the milk may be transferred to the plant.

58.824 Storage.--Raw milk shall be stored only in tanks or vats that have been properly cleaned and sanitized. Lines used for the movement of milk into the plant storage facilities or from one operation to another shall be cleaned and sanitized daily. Milk shall be maintained at a temperature of 45° F. or lower until pasteurized and at no time shall exceed a bacterial count of more than 300,000 per milliliter prior to pasteurization.

58.825 Separating and standardizing.--Milk shall be separated and standardized in accordance with good commercial practices. The skimmed portion and the cream obtained therefrom shall be properly stored and handled in a manner which will effectively retard an increase of bacterial growth prior to pasteurization.

58.826 Pasteurization and homogenization.--Raw milk to be used for milk or milk products shall be pasteurized immediately after being separated and standardized. The pasteurizing equipment and process shall

be in accordance with 3-A Accepted Practices for the Sanitary Construction, Installation, Testing and Operation of High Temperature Short-Time Pasteurizers.

If homogenization is intended, the homogenization of the product shall be accomplished between the preheat section and the pasteurization section or after pasteurization to insure deactivation of the enzyme lipase before the product passes through the homogenizer. The homogenizer shall be maintained in good repair and shall effectively reduce in size and disperse the fat globules as specified in Standard Methods. The pasteurized and homogenized product shall be cooled to 45° F. or lower and held for packaging.

58.827 Preparation and processing of batch products.--Dairy products such as chocolate (chocolate flavored) milk and milk products, half and half, cream products of various composition etc., shall be prepared in accordance with good commercial practice. The vats and product lines used shall be clean and properly sanitized. The ingredients shall be properly mixed and the product properly standardized according to precalculated standards of composition. The fully combined product shall then be properly pasteurized, homogenized if need be, cooled to 45° F. or lower and made ready for immediate packaging.

58.828 Preparation and processing of cultured dairy products.-- Cultured products such as sour cream and buttermilk shall be prepared by combining the ingredients and standardizing the product in accordance with a precalculated standard of composition. The ingredients shall be pasteurized and cooled to the optimum temperature for the starter culture used. A starter culture possessing a pleasing and desirable flavor and odor, and the ability to transmit the same characteristics to the cultured product shall be added at the proper time and temperature.

For buttermilk sufficient time shall be allowed for the development of lactic acid and the desired flavor and odor. During the time of incubation the product shall be held at about 72° F. After sufficient acid and flavor development has occurred, at about 0.8 percent acidity, the coagulum shall be broken. Butter granules may or may not be added and the product cooled further to 45° F. or lower and packaged.

In the case of cultured sour cream the starter should be added after the product has been homogenized, pasteurized and cooled to 72° F. The starter culture is added and the product is packaged or may be ripened in a vat and then packaged. The acidity, flavor and body development occurs in the container or in the vat. The product after reaching a pH of about 4.4 is cooled to 45° F. or lower.

58.829 Single-service containers.--Packaging materials are used to protect milk products from contamination. Therefore, they must be handled and stored in a manner that will preclude their becoming contaminated before being used in the packaging operation. Paperboard packaging materials used to make single-service containers, as well as preformed containers, should be kept sealed in their original packages or shipping cases until needed. Any opened packages not completely used during a day's operation should be closed and sealed. Paperboard must be protected from excessive heat or excessive moisture to insure proper performance. Prior to use, all single-service containers shall not have over one bacteria per square cm. in 3 out of 4 samples and shall be free of coliform organisms.

58.830 Container adhesives.-- Adhesives shall be stored at temperatures below 90° F. Adhesives shall be nontoxic, tasteless and odorless. Clean transfer containers shall be used and all portions shall be kept covered. Unused portions of adhesives shall be returned to storage.

58.831 Multi-use containers.--Reusable containers shall be properly cleaned and sanitized before each usage. The containers shall be sound and free of cracks, holes or scoring. Prior to use these containers shall not have over one bacteria per ml. of capacity or 50 bacteria colonies per 8 square inches of surface area (per square centimeter) in 3 out of 4 samples and shall be free of coliform organisms.

58.832 Filling containers.--All product contact surfaces of lines which convey pasteurized dairy products to a filler shall be clean and properly sanitized. Filler equipment shall also be clean and properly sanitized prior to use and shall be in good operating order. Whether the filler is used for filling glass, plastic, or paper containers it shall in no way contaminate or detract from the quality or desirability of the finished product. When changing from one type of milk product to another, such as cultured products or flavored milk products, it may be necessary to reclean and sanitize the filler so as not to adulterate a greatly dissimilar product with another. Consumer-size containers after being filled shall be properly sealed and placed in cases for storage under refrigerated conditions. If a cap or closure is used, it shall be applied by approved mechanical means in a sanitary manner. The cap or closure shall protect the pouring lip.

58.833 Product storage.--Milk and milk products shall be stored and transported under refrigerated conditions. The products shall be maintained at 45° F. or lower. The products shall also be guarded against freezing and protected from exposure to natural and excessive artificial light. It is most critical for products packaged in glass containers to be protected from light.

58.834 Quality control tests.--All milk product ingredients shall be subject to inspection for quality and condition throughout each processing operation. Quality control tests shall be made on flow line samples as often as necessary to check the effectiveness of processing and sanitation and as an aid in correcting deficiencies. Routine analysis shall be made on raw materials and finished products to assure adequate composition control. Any officially recognized tests shall be used as the need indicates, to help solve quality problems and deficiencies.

58.835 Frequency of sampling.--(a) Microbiological.--(1) At least one sample shall be taken from each producer per month. (2) At least twice a week a sample shall be taken from raw milk and cream storage at the plant. (3) Flow line samples shall be taken as often as is necessary to assure the required bacteriological quality of the finished products and to indicate points of contamination during processing. At least one sample per day shall be taken from each type product run. Continuous product runs such as market milk shall be sampled as often as is necessary to give a complete bacteriological picture of the entire product run. (4) To check the keeping quality as effected by bacterial action at least one container of each batch type product, and as many as necessary from continuous flow product runs, shall be taken.

(b) Sediment.--At least once each month a sample from each producer shall be taken for sediment content classification as described in section 58.132 of this subpart.

(c) Composition.--One sample shall be taken from each batch product run, and tested for fat and total solids. For the continuous flow products run, as many samples shall be taken as is necessary to assure composition control and compliance with regulatory standards.

(d) Weight or volume control.--Representative samples of the packaged products shall be checked during the filling operation to assure compliance with the stated net weight or volume on the container.

(e) Product evaluation.--At least twice a month a container of each finished product shall be evaluated for flavor, body, color and other applicable quality factors.

58.836 Test methods.-- (a) Microbiological.-- All tests shall be made in accordance with the methods described in the latest edition of Standard Methods.

(b) Keeping quality.--Storage quality tests shall be made in accordance with the methods described under the section on Psychrophilic Bacteria in the latest edition of Standard Methods.

(c) Chemical.--Chemical analysis shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the Association of Official Agricultural Chemists, the latest edition of Standard Methods, or other methods that give equivalent results.

58.837 General identification.--The various types of milk and milk products shall be packaged and labeled in accordance with the provisions established for each type of product by the appropriate regulatory agencies. Each commercial container of product offered for sale

shall be coded to establish the packaging date. By this means a systematic method of rotating stock, and picking up outdated products shall be established.

58.838 Official identification.--Only milk and milk products manufactured in accordance with the requirements established in this supplement and with the applicable requirements in Subpart B and which have been officially inspected in process and found to be in compliance with these requirements may be identified with the official USDA

Quality Approved Inspection Shield.

QUALITY REQUIREMENTS FOR PRODUCTS BEARING THE USDA  
QUALITY APPROVED INSPECTION SHIELD

58.839 General.--Milk or milk products which are to be officially identified with the USDA Quality Approved Inspection Shield shall meet the composition and labeling requirements set forth in the State and local laws or regulations under whose jurisdiction the products are manufactured, processed and sold. In cases where the State regulations for minimum composition of dairy products are lower than those defined in this supplement, then such levels of composition shall be acceptable when sold within the State.

Pasteurized milk and milk products other than cultured products shall have a bacterial standard plate count of no more than 20,000 per ml and shall not exceed a coliform count of 10 per ml. Cultured products shall not exceed 10 coliform per ml with no bacterial limit. In addition, the products shall meet the applicable requirements as specified in this supplement and in this subpart. The provisions of which shall provide a continuous daily quality control and testing procedure for maintaining the following product standards of flavor, body and texture, and appearance.

58.840 Milk.--May be homogenized, fortified, or contain added vitamin D.

(a) Flavor.--Shall have a fresh, sweet, pleasing and desirable flavor. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall possess a smooth, free flowing body. If unhomogenized a cream line or natural cream layer is desirable.

(c) Appearance.-- Shall be white to very light cream in color depending upon the season and the amount of milk fat it contains.

58.841 Low fat milk.--Shall be homogenized. May be modified, fortified, or contain added vitamin A and D.

(a) Flavor.--Shall have a fresh, sweet, pleasing and desirable flavor. Shall not be as lacking in the characteristic richness associated with milk fat as is skim milk, but will not appear as rich as whole milk.

(b) Body and texture.--Shall possess a smooth, free flowing body, with approximately the same apparent viscosity as whole milk.

(c) Appearance.--Shall be white in color, if modified may appear more opaque due to increased milk solids-not-fat.

58.842 Skim milk.--May be modified, fortified or contain added vitamin D.

(a) Flavor.--Shall have a fresh, sweet, desirable flavor though lacking in the characteristic richness associated with products containing a higher percentage of milk fat.

(b) Body and texture.--Shall possess a smooth, free flowing body less viscous than market milk.

(c) Appearance.--Shall exhibit a slight off white color characteristic of milk when almost all of the milk fat has been removed.

58.843 Half and Half.--(a) Flavor.--Shall have a pleasing and desirable fresh, sweet flavor. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall be uniform, smooth and free flowing. Be relatively viscous in proportion to the percent of fat present. Should show no feathering or oiling off when used in hot coffee.

(c) Appearance.--Shall be light cream in color and shall impart a creamy brown color to coffee.

58.844 Light cream.--(a) Flavor.--Shall have a pleasing and desirable fresh, sweet cream flavor. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall possess a smooth uniform body and shall be reasonably viscous for the amount of milk fat present. Should show no feathering or oiling off when used in hot coffee.

(c) Appearance.--Shall be medium cream in color and shall impart a rich creamy brown color to coffee.

58.845 Whipping cream.--(a) Flavor.--Shall have a sweet, rich flavor. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall possess a smooth, uniform body, relatively viscous in proportion to the percent of fat present. Shall respond readily to whipping under proper conditions.

(c) Appearance.--Shall be rich cream in color and when whipped shall exhibit stability and stiffness.

58.846 Whipped cream.--(a) Flavor.--Has a rich, nut like flavor free from all undesirable flavors and odors. When sweetened shall be of medium sweetness in intensity. If flavored, shall be of moderate intensity and natural in character. Added flavoring and sweeteners shall be so blended with the cream as to create a pleasing and desirable flavor.

(b) Body and texture.--Shall be smooth and uniform and shall exhibit a relatively stiff body with the ability to stand up and not whey off.

(c) Appearance.--Shall appear dry with no oiling or wheying off. Shall be light in color.

58.847 Sour Cream.--(a) Flavor.--Shall have a rich, clean, pleasing and desirable, milk acid flavor with an acidity of about 0.6 percent to 0.8 percent expressed as lactic acid. It should possess the delicate diacetyl aroma of a good butter culture. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall have a firm, heavy, smooth and homogenous body which shows some rigidity and will stand up, but is not gummy or resistant to pressure.

(c) Appearance.--Shall have a natural color. The color may range from a white to light cream. The surface shall appear dry and smooth showing a velvety luster.

58.848 Cultured buttermilk.--(a) Flavor.--Shall have a pleasing and desirable clean lactic acid flavor. Shall be tangy and possess the delicate aroma of diacetyl. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall be smooth, somewhat viscous and

possess a medium body. Shall not be curdy or whey off.

(c) Appearance.--Shall have a uniform attractive appearance of luster white. May or may not be flecked with small uniform yellow granules of butter or butterfat.

58.849 Chocolate milk or milk products.--(a) Flavor.-- Shall possess a natural chocolate flavor of an intensity equal to 1.5 to 2.5 percent of chocolate liquor. The sweetness shall be of medium intensity. Shall be free of all undesirable flavors and odors.

(b) Body and texture.-- Shall be smooth and free flowing free from sedimentation and with a viscosity slightly greater than normal milk.

(c) Appearance.--Shall be light to medium brown in color and of such intensity as to be appealing to the eye. Shall be uniform in appearance and be void of air bubbles or curdiness.

58.850 Chocolate flavored milk or milk products.--(a) Flavor.--Shall possess a natural chocolate flavor of an intensity equal to 1.0 to 1.5 percent of cocoa. The sweetness shall be of medium intensity. Shall be free of all undesirable flavors and odors.

(b) Body and texture.--Shall be smooth and free flowing free from sedimentation and with a viscosity slightly greater than normal milk.

(c) Appearance.--Shall be light to reddish-brown in color and of such intensity as to be appealing to the eye. Shall be uniform in appearance and be void of air bubbles or curdiness.

SUPPLEMENTAL SPECIFICATIONS FOR PLANTS  
MANUFACTURING, PROCESSING, AND PACKAGING EVAPORATED, CONDENSED  
OR STERILIZED MILK PRODUCTS

DEFINITIONS

58.905 Meaning of words.-- For the purpose of the regulations in this subpart, words in the singular form shall be deemed to impart the plural and vice versa as the case may demand. Unless the context otherwise requires, the following terms shall have the following meaning:

(a) Evaporated milk.-- Is the liquid food made by evaporating sweet milk to such point that it contains not less than 7.9 percent of milkfat and not less than 25.9 percent of the total milk solids. The finished product shall conform to the requirements of section 18.520 "Definitions and Standards of Identity for Milk and Cream," U. S. Food and Drug Administration (21 CFR 18.520).

(b) Concentrated milk, plain condensed milk.-- Is the product which conforms to the standard of identity for evaporated milk except that it is not processed by heat to prevent spoilage. The container may be unsealed, and stabilizing ingredients are not used. The finished product shall conform to the requirements of section 18.525 "Definitions and Standards of Identity for Milk and Cream," U. S. Food and Drug Administration (21 CFR 18.525).

(c) Sweetened condensed milk.-- Is the liquid or semi-liquid food made by evaporating a mixture of sweet milk and refined sugar (sucrose) or any combination of refined sugar (sucrose) and refined corn sugar (dextrose) to such point that the finished sweetened condensed milk contains not less than 28.0 percent of total milk solids and not less than 8.5 percent of milkfat. The quantity of sugar used is sufficient to prevent

spoilage. The finished product shall conform to the requirements of section 18.530 or 18.535, respectively, "Definitions and Standards of Identity for Milk and Cream," U. S. Food and Drug Administration (21 CFR 18.530 and 18.535).

(d) Sterilized milk concentrated.-- Is sweet whole milk concentrated to about 1/3 its original volume by the removal of water and packaged primarily in hermetically sealed glass or metal containers. The final product contains about 9.9% milkfat and 24.3% milk solids-not-fat for a total of 34.2% milk solids. The product may also contain added vitamin D as well as certain stabilizing ingredients permitted under the Federal Food, Drug and Cosmetic Act.

(e) Sterilized milk.-- Is the normal milk from which no water has been removed but which is packaged and sterilized in a container or is sterilized and packaged aseptically. The final product contains a minimum of 3.25% milkfat and 8.25% milk solids-not-fat. The product may also contain added vitamin D as well as certain stabilizing ingredients permitted under the Federal Food, Drug and Cosmetic Act.

(f) Sterilized chocolate (chocolate flavored) milk.-- The product made by the addition of sugar and chocolate (cocoa) to milk. The milkfat content is at least 3.25 percent and the milk solids-not-fat at least 8.25 percent and may contain certain stabilizing ingredients permitted under the Federal Food, Drug and Cosmetic Act. The product is sterilized and packaged aseptically or may be placed in metal containers hermetically sealed and heat treated to accomplish sterilization.

(g) Sterilized chocolate (chocolate flavored) drink.-- The product made by the addition of sugar and chocolate (cocoa) to milk. The milkfat content is less than 3.25 percent and the milk solids-not-fat at least 8.25 percent and may contain certain stabilizing ingredients permitted under the Federal Food, Drug and Cosmetic Act. The product is sterilized and packaged aseptically or may be placed in metal containers hermetically sealed and heat treated to accomplish sterilization.

#### EQUIPMENT AND UTENSILS

58.912 General construction repair and installation.-- The equipment and utensils used for processing and packaging evaporated, condensed or sterilized milk products shall be as specified in section 58.128. In addition for certain other equipment, the following requirements shall be met.

58.913 Evaporators and vacuum pans.-- All equipment used in the removal of moisture from milk or milk products for the purpose of concentrating the solids should meet the requirements of the 3-A Sanitary Standards for Milk and Milk Products Evaporators and Vacuum Pans; except that copper evaporators used for evaporated milk may be approved if free from corroded surfaces and kept in good repair. All new or used replacements for this type of equipment shall meet the appropriate 3-A Sanitary Standards.

58.914 Fillers.-- Both gravity and vacuum type fillers shall be of sanitary design and all product contact surfaces, if metal, shall be made of stainless steel or equally corrosion-resistant material; except that, certain evaporated milk fillers having brass parts may be approved if free from corroded surfaces and kept in good repair. Non-metallic product contact surfaces shall meet the requirements for 3-A Sanitary

Standards for Rubber and Rubber-like Materials or for Multiple Use

Plastic Materials. Fillers shall be designed so that they in no way will contaminate or detract from the quality of the product being packaged.

58.915 Batch or continuous in-container sterilizers.--Shall be equipped with accurate temperature controls and effective valves for regulating the sterilization process. The equipment shall be maintained in such a manner as to assure control of the length of time of processing, and to minimize the number of damaged containers.

58.916 Homogenizer.-- Homogenizers where applicable shall be used to reduce the size of the fat particles and to evenly disperse them in the product. Homogenizers should meet the applicable 3-A Sanitary Standards.

OPERATIONS AND OPERATING PROCEDURES

58.917 General.--There are many operations and procedures used in the preparation of evaporated, condensed and sterilized milk products that are similar, therefore, the following general requirements will apply when such operations or procedures are used.

58.918 Standardization.-- The standardization of the product to obtain a finished product of a given composition shall be accomplished by the addition of milkfat, milk solids-not-fat and/or water. The ingredients added to accomplish the desired composition shall be of the same hygienic quality as the product being standardized.

58.919 Pre-heat, Pasteurization.-- When pasteurization is intended or required by either the vat method, H T S T method, or by the U H T method it shall be accomplished by systems and equipment meeting the requirements outlined in section 58.128 of this subpart. Pre-heat temperatures prior to sterilization will be those that have the most favorable effect on the finished product.

58.920 Homogenization.-- Where applicable concentrated products shall be homogenized for the purpose of dispersing the fat throughout the product. The temperature of the product at time of homogenization and the pressure at which homogenization is accomplished will be that which accomplishes the most desired results in the finished products.

58.921 Concentration.-- Concentrating by evaporation shall be accomplished with a minimum of chemical change in the product. The equipment and systems used shall in no way contaminate or adversely affect the desirability of the finished product.

58.922. Sterilization.-- The complete destruction of all living organisms shall be performed in one of the following methods. (a) The complete in-container method, by heating the container and contents to a range of 212° F. to 280° F. for a sufficient time; (b) By a continuous flow U H T S T process at high temperatures of 280° F. and above for a sufficient time, then packaged aseptically; (c) The product is first sterilized according to U H T S T methods as in (b), then packaged and given further heat treatment to complete the sterilization process.

58.923 Filling containers.-- (a) The filling of small containers with product shall be done in a sanitary manner. The containers shall not contaminate or detract from the quality of the product in any way. After filling, the container shall be hermetically sealed. (b) Bulk containers for unsterilized product shall be suitable and adequate to protect the product in storage or transit. The bulk container (including bulk tankers) shall be cleaned and sanitized before filling, and filled and closed in a sanitary manner.

58.924 Aseptic filling.-- A previously sterilized product shall be filled under conditions which prevent contamination of the product by living organisms or spores. The containers prior to being filled shall be sterilized and maintained, in a sterile condition. The containers shall be sealed in a manner that prevents contamination of the product.

58.925 Sweetened condensed.-- After condensing, the sweetened condensed product should be cooled rapidly to about 85° F. to induce crystallization of the oversaturated lactose. When the desired crystallization is reached further cooling is resumed to 68° - 70° F.

58.926 Heat stability.-- Prior to sterilization of concentrated products and where stabilizers are allowed, tests should be made on the heat stability of the product to determine necessity for, and the amount of stabilizer needed. Based on the stability tests, the necessary amounts of stabilizers (not to exceed 0.1 percent of the concentrated product) may be added.

58.927 Storage.-- Finished products which are to be held more than 30 days should be stored at temperatures below 72° F. Precautions shall be taken to prevent freezing of the product.

58.928 Quality control tests.-- All dairy products and other ingredients shall be subject to inspection for quality and condition throughout each processing operation. Quality control tests should be made on flow samples as often as is necessary to check the effectiveness of processing and manufacturing and as an aid in correcting deficiencies. Routine analysis should be made on raw materials and finished products to assure adequate composition control. For each batch or production run a keeping quality test should be made to determine product stability.

58.929 Suitability screening test.--Periodic sampling and testing of raw milk supplies used for processing evaporated, condensed or sterilized milk products should be performed as an aid in determining the need for further testing to screen out milk that is high in heat resistant spore forming organisms. Tests for these organisms shall be conducted as outlined in Standards Methods.

Milk to be considered as satisfactory for use should have less than one spore per ml and upon being heated for 10 minutes at 253° F. should have less than .1 spore surviving per ml.

58.930 Frequency of sampling for quality control.-- Evaporated, condensed and sterilized milk products. (a) A minimum of one sample should be taken from each batch of product or one per hour for each continuous production run.

(b) Composition.--Sampling and testing for composition should be made on each batch of product. On continuous production runs enough samples shall be taken throughout the run to adequately assure composition requirements.

(c) Other chemical analysis or physical analysis.--Such tests shall be performed as often as is necessary to assure compliance with standards, specifications or contract requirements.

(d) Weight or volume control.--Representative samples of the packaged products shall be checked during the filling operation to assure compliance with the stated net weight or volume on the container.

(e) Keeping quality and stability.--A minimum of one sample from each batch of product or one representative sample per hour from a continuous production run should be taken. For continuous runs, samples

should be taken at the start, each hour, and at the end of the run. Samples should also be taken after resumption of processing following an interruption in continuous operation. Each sample shall be incubated at 90° F. to 100° F. for seven days.

58.931 Official test methods.--(a) Chemical.--Chemical analysis, except where otherwise prescribed herein, shall be made in accordance with the methods described in the latest edition of Official Methods of Analysis of the AOAC; by Standard Methods or by other methods giving equivalent results.

(b) Microbiological.--Microbiological determinations shall be made in accordance with the methods described in the latest edition of Standard Methods for the Examination of Dairy Products.

58.932 General identification.--Consumer-sized containers and bulk shipping containers shall be legibly marked with the name of the product, net weight, name and address of manufacturer, processor or distributor, a lot number and coded date of manufacture.

#### QUALITY SPECIFICATIONS FOR RAW MATERIALS

58.933 Milk.--To process and package evaporated, condensed or sterilized milk products eligible for official identification with the USDA Quality Approved Inspection Shield the raw incoming milk shall meet the requirements as outlined in Sections 58.132 through 58.138 of this subpart. Unless processed within two hours after being received, it shall be cooled to, and held at a temperature of 45° F. or lower until processed.

58.934 Stabilizers.--Shall be those permitted by the U. S. Food and Drug Administration. "Standards of Identity" as optional ingredients for specific products. Stabilizers shall be free from extraneous material,

be of food grade quality and not be in violation of the Federal Food, Drug and Cosmetic Act.

58.935 Sugars.-- Sucrose, dextrose or lactose used in the manufacture of sweetened condensed or sterilized milk products shall be refined, and of food grade quality.

58.936 Chocolate and Cocoa.-- Such products used as flavor ingredients shall meet the requirements of the U. S. Food and Drug Administration, "Definitions and Standards of Identity for Cocoa Products."

QUALITY REQUIREMENTS FOR FINISHED PRODUCTS BEARING THE  
USDA QUALITY APPROVED INSPECTION SHIELD

58.937 Physical requirements for Evaporated Milk.-- (a) Flavor.-- The product shall possess a sweet, pleasing and desirable flavor with not more than a definite cooked flavor. It shall be free from scorched, oxidized or other objectionable flavors and odors. (b) Body and texture.-- The product shall be of uniform consistency and appearance. It shall be smooth and free from fat separation, lumps, clots, gel formation, coarse milk solids precipitate or sedimentation and extraneous material.

(c) Color.-- The color shall be of a natural white or light cream.

(d) Degree of burn-on.-- The interior walls of the container shall not show excessive burn-on of product (product fused to more than 75 percent of the inner surface of the can.) (e) Keeping quality.--Samples incubated at 90-100° F. shall show no sensory, chemical or microbiological deterioration after seven days.

58.938 Physical requirements and Microbiological Limits for Sweetened Condensed Milk.-- (a) Flavor.-- Shall be sweet, clean, and free from rancid, oxidized, scorched, fermented, stale or other objectionable flavors and odors. (b) Color.-- Shall be white to light cream. (c) Texture.-- Shall be smooth and uniform, free from lumps or coarse graininess. There shall not be sufficient settling of the lactose

to cause a deposit on the bottom of the container. (d) Body.-- Shall be sufficiently viscous so that the product upon being poured at room temperature piles up above the surface of that previously poured, but does not retain a definite form. (e) Microbiological limits.--

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|-----------------------|--------------------------|
| (1) Coliforms         | less than 10 per gram    |
| (2) Yeasts            | less than 5 per gram     |
| (3) Molds             | less than 5 per gram     |
| (4) Total Plate Count | less than 1,000 per gram |

(f) Keeping Quality.-- Samples incubated at 90 -100° F. shall show no physical evidence of deterioration after seven days. (g) Composition.-- Shall meet the minimum requirements as set forth in the "Standards of Identity for Milk and Cream," U. S. Food and Drug Administration (21 CFR 18.530 and 18.535). In addition, the quantity of refined sugar used shall be sufficient to give a sugar-in-water ratio of not less than 61.5 percent. (h) Sediment.-- The amount of sediment retained on a lintine disc after a sample composed of 225 grams of product dissolved in 500 ml of 140° F. water has passed through it, shall not exceed 0.10 mg. as indicated by the USDA Sediment Standard for Milk and Milk Products, (7 CFR 58.2726).

58.939 Physical requirements for Sterilized Milk.-- (a) Flavor.-- Shall be pleasing and desirable and free from scorched, oxidized, tallowy, storage or other objectionable flavors and odors. But may have a slight cooked or sterilized flavor. (b) Body.-- Shall be smooth, uniform and free from fat and mineral separation, lumps, clots and coarse milk solids precipitate. (c) Color.-- Shall be white or light cream and shall be free from any brown or yellow color typical of overheating. (d) Composition.-- Shall contain not less than 3.25 percent milkfat and not less than 8.25 percent solids-not-fat. Acidity not to

exceed .16 percent calculated as lactic acid. (e) Sediment.-- The amount of sediment retained on a lintine disc through which a one pint sample has passed, shall not exceed 0.05 mg. as indicated by the USDA Sediment Standard for Milk and Milk Products, (7 CFR 58.2726). (f) Sterility.-- Shall show no microbiological development at the end of the 7-day incubation test at 90 - 100° F. (g) Keeping quality and stability.-- The sample taken and stored at 90 - 100° F. shall also show no physical evidence of deterioration after 7-day incubation. The samples shall possess a satisfactory flavor and color and shall be free from marked separation of fat, cream, and serum.

58.940 Physical requirements for Sterilized Milk Concentrate.-- The product initially shall contain about 34.2% total milk solids. When reconstituted with two parts water, the product shall meet the same requirements for Flavor, Body, Color, Composition, and Sediment as listed in section 58.939. In the packaged, unreconstituted form the product shall meet the same requirements for Sterility, Keeping quality and stability, as listed in section 58.939 for Sterilized Milk.

58.941 Physical requirements for Sterilized Chocolate (Flavored) Milk or Drink.-- (a) Flavor.-- Shall have a pleasing and desirable definite sweetened chocolate flavor and shall be free from scorched, oxidized, stale, fruity, rancid, storage or other objectionable flavors. (b) Body.-- Shall be smooth, uniform, free from lumps, clots and definite chocolate sedimentation. Shall have been properly homogenized to prevent creaming or fat separation. (c) Color.-- Shall have a uniform chocolate color throughout. (d) Composition.-- Shall contain the amounts and types of ingredients as set forth in sections 58.907 and 58.908 under definitions

of the product. (e) Sterility-- Shall show no microbiological development at the end of the 7-day incubation at 90 - 100° F. (f) Keeping quality and stability-- The sample taken and stored at 90 - 100° F. shall also show no deterioration after 7-days incubation. The samples shall possess a satisfactory flavor and color and shall be practically free from chocolate sedimentation and free from separation of fat, solids-not-fat, and serum.

The reporting and/or record-keeping requirements contained herein have been approved by the Bureau of the Budget in accordance with the Federal Reports Act of 1942.

Done at Washington, D. C. this 10th day of March 1967.

G. R. Grange  
Deputy Administrator  
Marketing Services

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